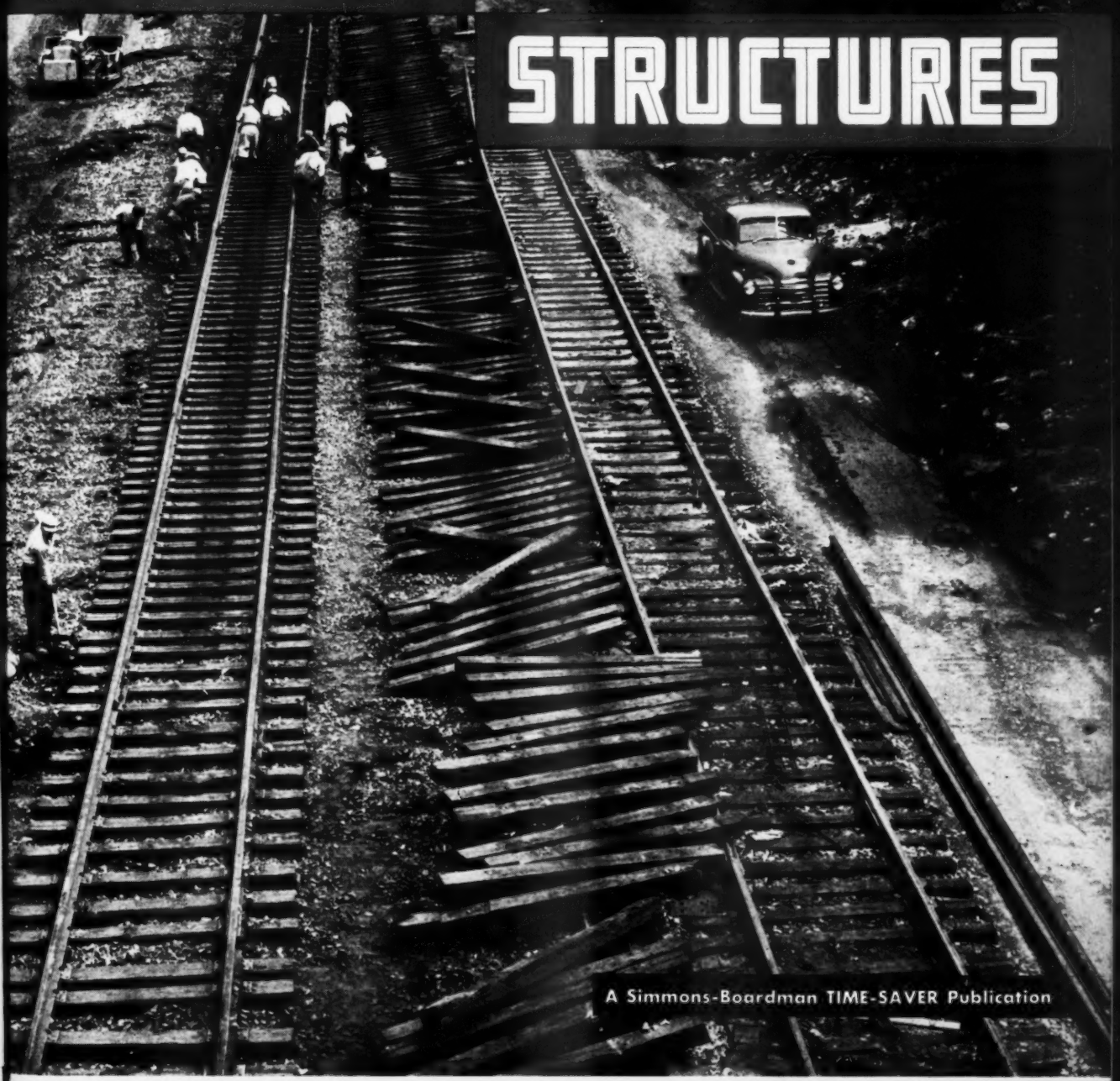
anuary 1960

SPECIAL REPORT

B&O gets set for the '60's

ilway TRACK and STRUCTURES



A Simmons-Boardman TIME-SAVER Publication

Helping the B&O in its

Modern Maintenance Program!

Wherever railroads have a modern maintenance program, you'll find Kershaw machines at the forefront doing their part to reduce operating expenses and provide the finest performance in the land.

The Kershaw Ballast Regulator, Scarifier and Plow (above) and the Kershaw Track Crane (left) are two of the long line of great Kershaw machines designed for quality maintenance. The B&O has many of both machines working throughout the system.

In fact, virtually every Class I railroad in the country has standardized on the Kershaw Ballast Regulator. Kershaw now has some 500 Ballast Regulators working on railroads throughout the world — and in every conceivable ballast condition.

Now comes the 1960 model of the Kershaw Ballast Regulator, the best ever. It is improved in many ways to do even more jobs and at still lower operating costs. Put the Kershaw Ballast Regulator and other Kershaw machines in your 1960 maintenance budget! It belongs!

Do you have a problem moving equipment from one job to another? The Kershaw Utility Trailer (below) may be the answer. Here's Kershaw's latest product ready to haul the Ballast Regulator over highways from one track location to another.

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Here, one of our teams tests the anchorage capacity of a Bethlehem Roof Bolt assembly. If you're interested in learning more about roof bolts, remember that our men are ready to do a lot more than just talk. They'll help you with the original installation and testing of mine roof bolts and accessories. Just let us know where and when.

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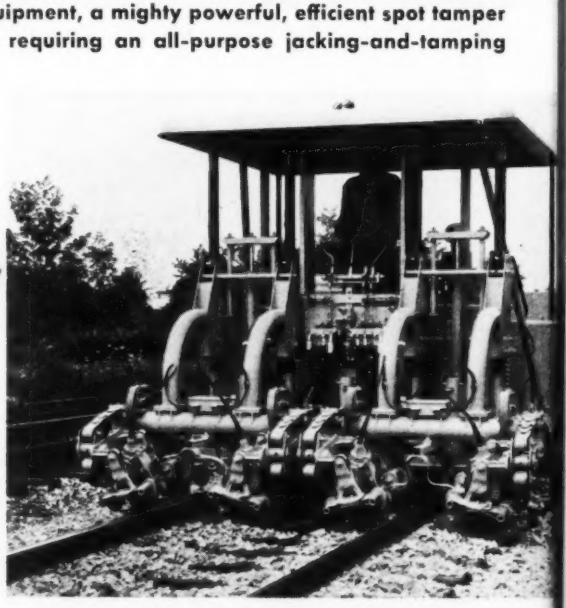
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

THE *NEW* JACKSON JACK-SPOT TAMPER: A product of intensive research, development and testing *with all operations electrically controlled and push-button operated.* It's an exceedingly fast Jack Tamper, adapted to existing track surfacing equipment, a mighty powerful, efficient spot tamper and ideal as an all-around production tamper for those requiring an all-purpose jacking-and-tamping machine.

THE *1960* JACKSON TRACK MAINTAINER: Faster and better than its predecessors though those machines won an endorsement by leading track men such as no other in this category has ever enjoyed . . . purchase and use on nearly all the major systems in America. For the dual purpose of putting up and maintaining track of finest, longest-lasting quality at minimum cost, it is demonstrably the finest money will buy.



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Another versatile, highly efficient tamper. Excellent for spotting and smoothing, secondary programs and all yard track maintenance. Hydraulically actuated and controlled. Equipped for quick transfer to opposite rail, quick take-off and towing behind truck.

Get the facts concerning these machines and you will recommend them with assurance.

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Railway TRACK and STRUCTURES

JANUARY

1960 • Vol. 56, No. 1

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Special report on the B&O

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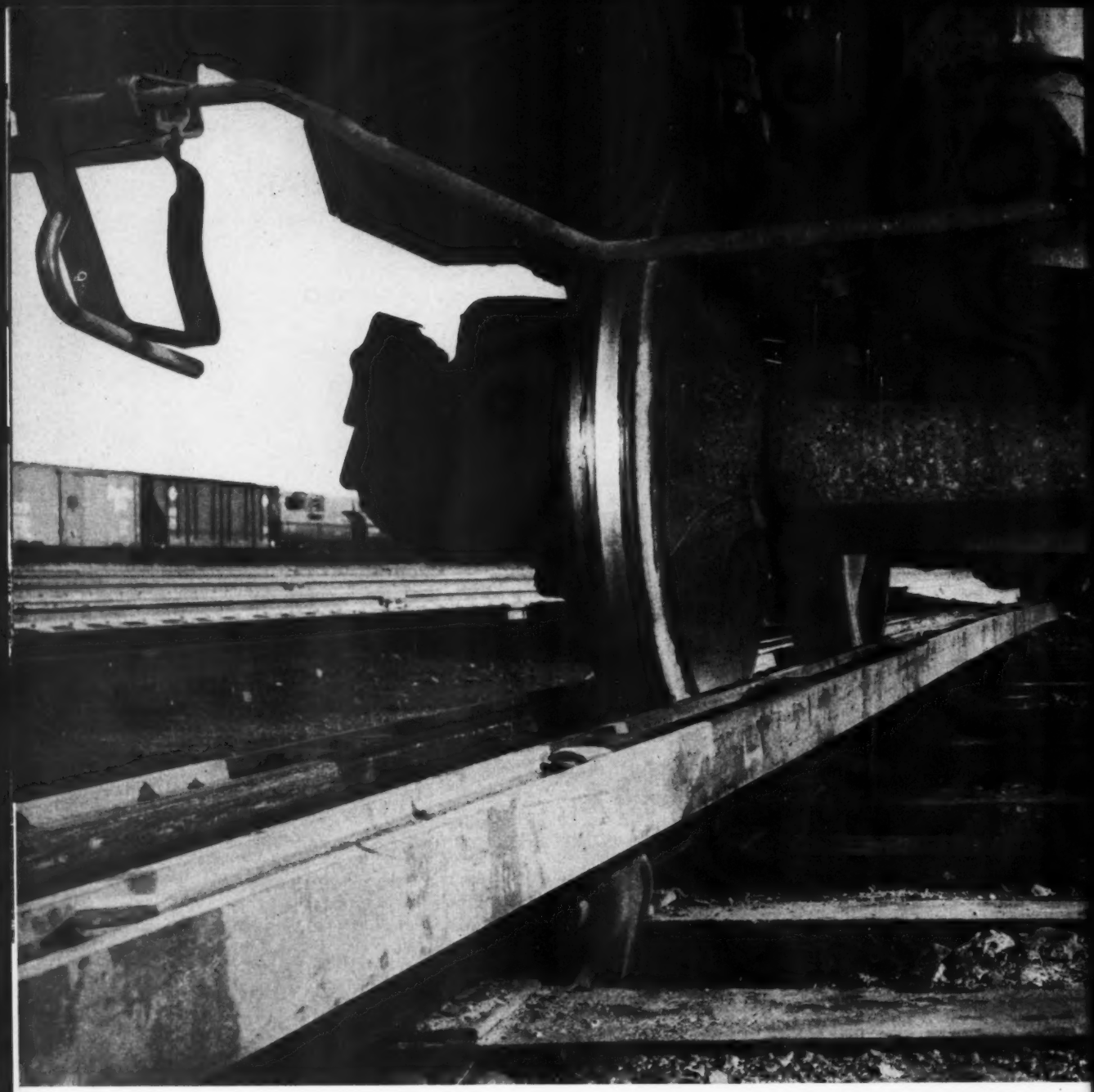
◀ Don't miss . . .

This time of the year the thoughts of many maintenance men turn to brush. It's a big problem today, but there are improved methods of dealing with it, as will be brought out in a comprehensive special feature.

. . . in the February issue

Published monthly by Simmons-Boardman Publishing Corporation, 10 West 23rd St., Bayonne, N. J., with editorial and executive offices at 79 West Monroe Street, Chicago 3, Illinois; 30 Church Street, New York 7, New York. Subscription prices: to railroad employees only in the United States and Possessions, and Canada, one year $2.00. Re-entry of second class privileges authorized at Newark, N. J., with additional second class privileges, Bristol, Conn. Volume 56, No. 1.



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NEW RACOR® MECHANICAL CAR RETARDER* IS COMPLETELY AUTOMATIC!

**(Patent Applied For)*

No skates or skate men are needed in gravity classific
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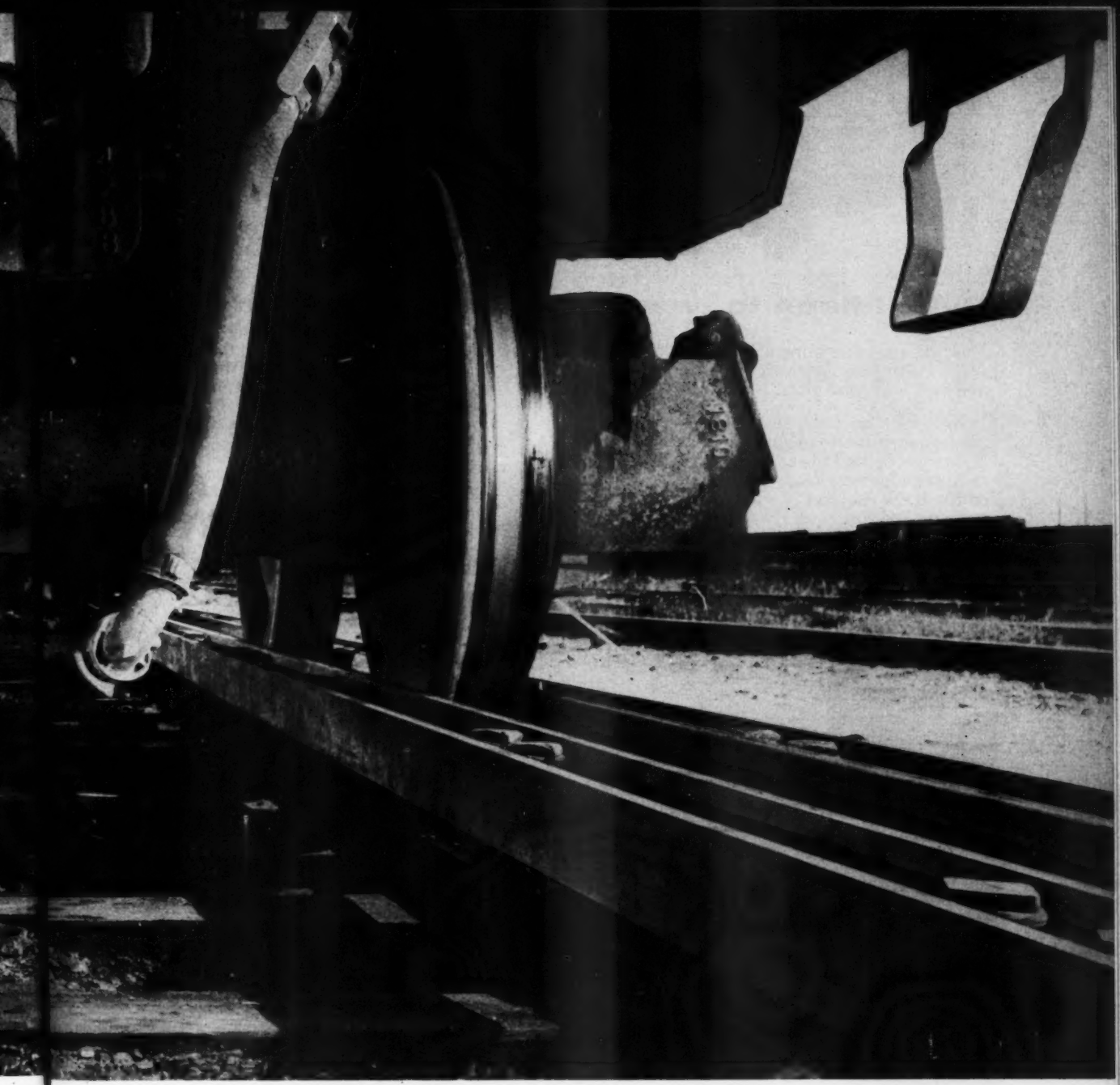
at the end of each track! The consequent reduction
operating expense will amortize the cost of the retarde
in a short time. Still further savings accrue from reduc
damage to lading through absorption of impact as ca
come together.

The Racor Mechanical Car Retarder has been d
signed to bring rolling cars to a stop at the end of gravi
classification yard track and to resist their furth
movement by the impact of succeeding cars. T



enters it. Once adjusted, it needs no further attention—operation is completely automatic.

retarder consists of spring loaded rails which apply retarding force simultaneously to both rim and flange of each pair of wheels. It applies opposing forces in such a way as to eliminate the possibility of derailment. Retarding action is entirely mechanical, and no difficulty is encountered in moving either the cars or the locomotive through the retarder when the track is being "pulled".

Your American Brake Shoe representative will be glad to make a study of the operation of *your* yard in order to determine the savings that can be derived from the installation of Racor Mechanical Car Retarders. American Brake Shoe Company, Railroad Products Division, 530 Fifth Avenue, New York 36, N. Y.

A-5962

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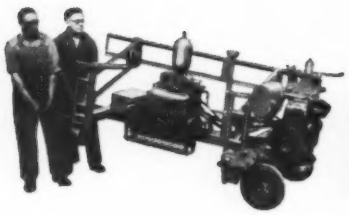
Quality products cut your ton-mile costs



FAIRMONT

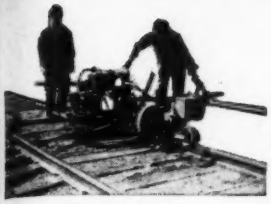
Pulls fifteen to twenty track spikes a minute

Now one man operating a Fairmont W84 Hydraulic Spike Puller can pull track spikes faster than four or five men with claw bars.

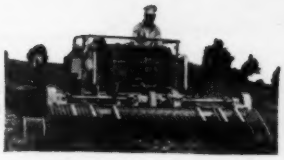
Imagine how much faster and more economical your track maintenance could be with a Fairmont W84 Hydraulic Spike Puller. It works both sides of both rails while moving in one direction . . . sets off easily on the track shoulder . . . and adapts to almost any spike pulling job.

The Fairmont W84 is built so the pulling assembly takes the full load—none is transmitted to the machine proper. The heavy-duty pump arrangement exerts the maximum force at the start of the pulling stroke. A ball-and-socket mounting permits the assembly to tilt sideways to reach spikes and still be at right angles to the rail base. And, important for safety, the operator is never in contact with the pulling mechanism.

All these features add up to the most economical, safest method of pulling spikes. Why not start a program to equip all your gangs with a Fairmont W84 Hydraulic Spike Puller? Call or write today for full information.



W68 SERIES A HYDRAULIC TIE REMOVER. Requires only two men to push out old ties at the rate of one per minute.



W87 SERIES B TIE BED SCARIFIER. Operated by one man, it can dig a hardpacked, ten-foot tie bed in less than a minute.

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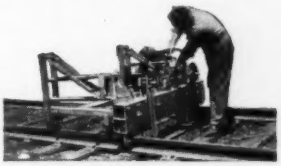

W86 SERIES B HYDRAULIC RAIL LIFTER. One-man operation lifts rails—makes removing or inserting plates quick and easy.

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NEWS ABOUT PEOPLE

BESSEMER & LAKE ERIE—R. C. McMaster, junior designing engineer in the office of engineer bridges and buildings at Greenville, Pa., has been promoted to engineering assistant.

CANADIAN NATIONAL—John G. Murray, division engineer at New Glasgow, N. S., has been transferred to Moncton, N. B., succeeding **M. F. Keith Leighton** who has been promoted to work study officer-engineering, at Moncton.

CHESAPEAKE & OHIO—C. B. Porter, assistant general real estate agent at Huntington, W. Va., and an engineer by training and experience, has been promoted to general real estate agent there.

FLORIDA EAST COAST—J. M. Wolfe, assistant chief engineer at St. Augustine, Fla., has been appointed acting chief engineer there, succeeding **L. C. Frohman** who has retired after 43 years of service.

FRISCO—H. L. Woldridge, process engineer at Springfield, Mo., has been promoted to assistant chief engineer-methods, there.

LOUISVILLE & NASHVILLE—C. F. Anderson, assistant division engineer at Evansville, Ind., has been promoted to division engineer there, succeeding **James K. Gloster** who has been promoted to engineer maintenance of way at Louisville, Ky. Mr. Gloster succeeds **Edward Wise, Jr.,** whose death was announced in the October issue. **Walter B. Kuersteiner,** associate bridge engineer at Louisville, has retired after more than 39 years of service.

William H. Barber has been appointed assistant division engineer of the Pensacola subdivision, succeeding **Charles L. Gatton** who has been transferred to the Montgomery & New Orleans subdivision of the Montgomery, New Orleans & Pensacola division. **John M. Rogers** has been appointed assistant supervisor track at Montgomery, Ala., succeeding **William E. Dean** who has been promoted to track supervisor at Beatrice, Ala. Mr. Dean succeeds **A. J. Powell** who retired recently. **L. A. Logsdon** has been appointed assistant supervisor bridges and buildings at Mobile, Ala., succeeding **J. B. Sellers** who has been promoted to assistant division engineer at Evansville, Ind.

MILWAUKEE—V. E. Glosup, general manager-Lines East, at Chicago, and an engineer by training and experience, has been promoted to the new position of assistant vice president-operation, there.

A. E. Moxness, roadmaster at Tacoma, Wash., has retired effective December 31. He is succeeded by **J. Spatafore** whose transfer to Tacoma was announced in the December issue.

NEW YORK CENTRAL—Stanley L. Furry, supervisor track at Greencastle, Ind., has been promoted to assistant division engineer at Columbus, Ohio.

NORFOLK & WESTERN—Cecil C. Lawson, transitman at Norfolk, Va., has been promoted to resident engineer at Radford, Va., succeeding **W. E. Hankins** who has retired after 46 years of service. **Floyd E. Steffey,** roadmaster-supervisor bridges and buildings at Roanoke, Va., has retired after more than 46 years of service.

PENNSYLVANIA—H. O. Mathias has been appointed assistant engineer at Chicago. **W. F. Herbert** has been appointed assistant supervisor-structures, at Fort Wayne, Ind.

ROCK ISLAND—R. P. Scott, who has been on leave of absence, has returned to his position as general roadmaster at Kansas City, Mo., succeeding **J. C. McConnell** who has returned to his former position as roadmaster at Iowa City, Iowa. Mr. McConnell succeeds **C. S. Grimm** who has returned to his former position as roadmaster at Eldon, Iowa., succeeding **T. J. Burian.** Mr. Burian returns to his former position as track supervisor at Fairbury, Neb.

SANTA FE—George W. Varnum, office engineer at Los Angeles, Cal., retired November 30 after 49 years of service.

SOUTHERN—Sam M. Sims, Jr., assistant division engineer at Hattiesburg, Miss., has been promoted to general division engineer at Birmingham, Ala. **Dennis L. Belk** has been appointed assistant division engineer at Princeton, Ind., succeeding **Gordon H. Schenck, Jr.,** who has been transferred to New Orleans, La. Mr. Schenck succeeds **William G. Park** who has been promoted to division engineer at Somerset, Ky.

SOUTHERN PACIFIC—J. L. Martinez and **F. L. Martinez** have been promoted to track supervisors at Woodland, Cal., and Sacramento, respectively.

TEXAS & PACIFIC—J. Audra Wright, maintenance of way inspector at Dallas, Tex., has been promoted to general roadmaster at Big Spring, Tex., succeeding **L. R. Stevens** who retired November 1.

Obituary

J. R. Kanan, assistant engineer of track on the Chicago, Burlington & Quincy at Galesburg, Ill., died December 8 at the age of 63.

D. W. Burns, 47, division engineer on the Louisville & Nashville at Chattanooga, Tenn., died November 18.

Biographical Briefs

Bruce G. Anderson
GN

H. M. Gresham
TCT

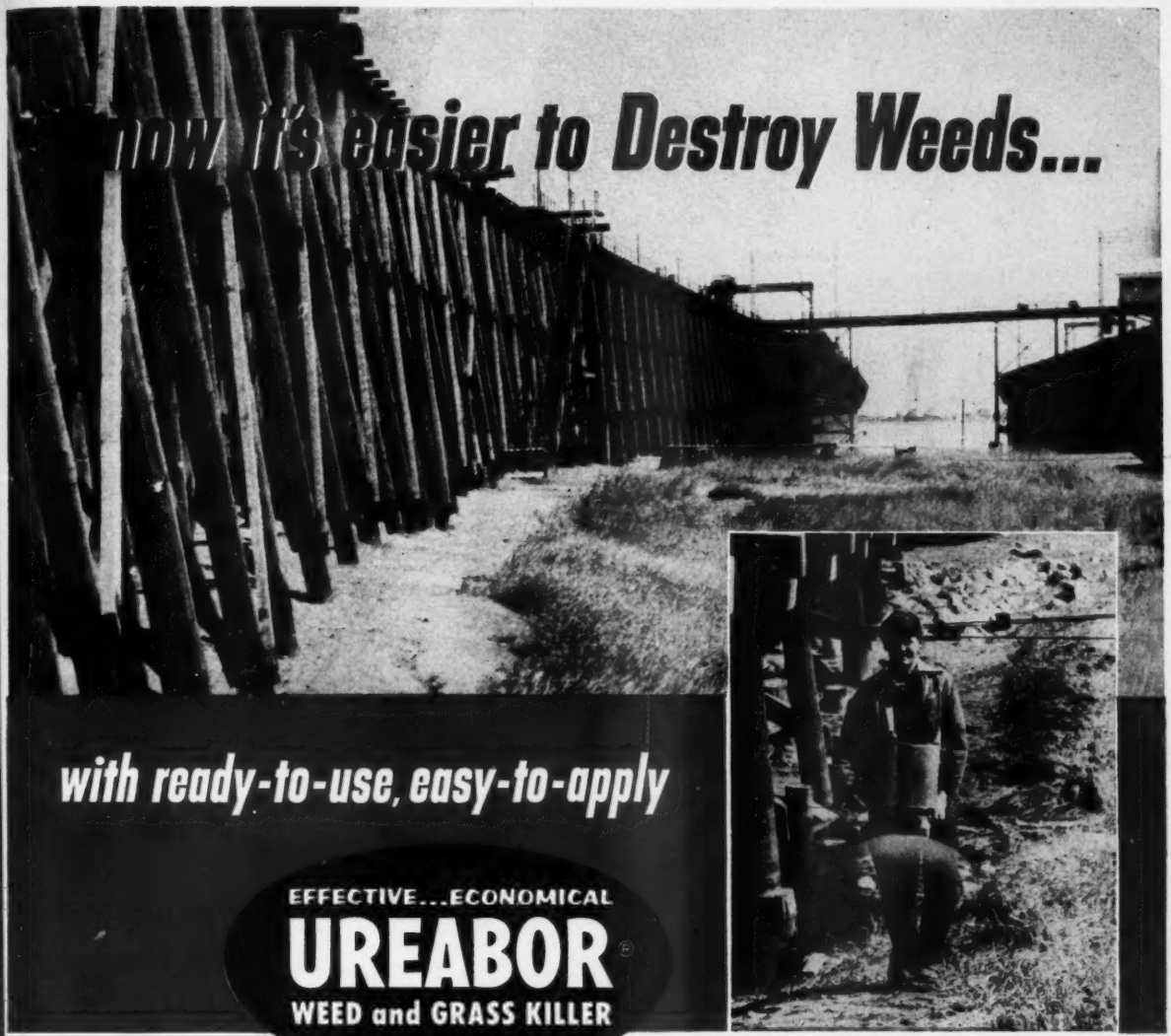
Bruce G. Anderson, 41, who was recently promoted to assistant chief engineer of the Great Northern at St. Paul, Minn. (*RT&S*, Oct., p. 10), was born at Spokane, Wash., and graduated from Washington State University in 1940 with a Bachelor of Science degree in civil engineering. Mr. Anderson entered the service of the GN in 1940 as a chainman at Whitefish, Mont., being promoted to rodman at Great Falls, Mont., the following year. From March 1942 to December 1945 he served with the U. S. Army on reconnaissance and survey work. After completing military service he returned to his former position at Great Falls. He was subsequenlty promoted to instrumentman there in 1946; division engineer, also at Great Falls, in 1949; and office engineer and principal engineer at Seattle, Wash. Mr. Anderson was serving as district engineer at Duluth, Minn., at the time of his recent promotion.

Harry M. Gresham, 36, who was recently promoted to chief engineer of the Texas City Terminal at Texas City, Tex. (*RT&S*, Sept. p. 10), was born at San Antonio, Tex., and graduated from the University of Houston in 1949. Mr. Gresham entered the service of the Texas City Terminal in August 1957 after prior service with the United States Corps of Engineers and consulting engineers.

Robert F. Garner, 43, who was recently promoted to valuation engineer of the Boston & Maine at Boston, Mass. (*RT&S*, Oct., p. 10), was born at Providence, R. I., and graduated from Brown University in 1940. Mr. Garner entered the service of the B&M in July of that year as a chainman at Baldwinville, Mass., being promoted to rodman three months later. From February 1941 to March 1946 he was in military service. Returning to the B&M at that time he was appointed student supervisor at Concord, N. H. Mr. Garner subsequently was promoted to assistant track supervisor at Dover, N. H. in 1947; assistant engineer there in 1948 and assistant division engineer, also at Dover, in 1952, serving also in this capacity at Greenfield, Mass. He was further promoted to division engineer there in 1954 and to assistant to chief engineer at Boston the following year, the position he held at the time of his recent promotion.

F. Lionel Peckover, 38, who was recently appointed soils engineer on the Canadian National at Montreal, Que. (*RT&S*, Aug., p. 10), was born at Toronto, Ont., and graduated from the University of Toronto

(*Continued on page 60*)



Here's your thriftier, easier way to stop weeds! Look in that hand and you'll see enough UREABOR to kill vegetation in a 12 sq. ft. area! Consider the convenience and economy this can mean to you. Consider, too, that a UREABOR "kill" remains effective for a season or longer. And UREABOR has important safety features; it is *nonflammable, nonpoisonous* when used as directed, and *does not corrode* ferrous metals. Protect your timber structures, yards and buildings from fire-hazardous weeds by applying UREABOR weed killer now... it's easier to apply!

Nothing to mix... no water to haul

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The PCB Spreader applies UREABOR to best advantage, at prescribed low rates. It holds enough UREABOR to treat up to 2500 sq. ft. without refilling—weighs a mere 6 lbs.

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POWER*

exclusive T-POWER construction stops track creepage with up to 5 times more bearing area

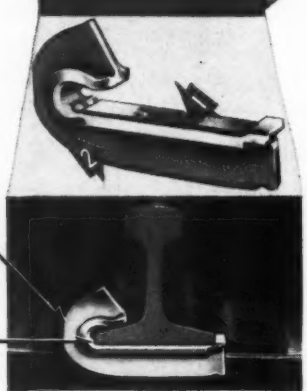
Holding the rail in a vise-like grip, the IMPROVED FAIR rail anchor bears against the tie, tie plate or both. When the stresses of traffic or thermal changes occur, T-POWER stops track creeping cold. Up to 11 square inches of bearing area help to do the job better–Result: Holding power is increased; tie life is extended; maintenance costs are reduced. And, IMPROVED FAIR rail anchors can be applied with maul, sledge or by machine...Get the complete T-POWER story...Write for descriptive literature.

T-POWER means MORE HOLDING POWER

Two full length bearing surfaces give greater resistance to movement.

1. Complete length of T section *rib bears against tie plate* — fits perfectly between rail and tie.

2. Stem of *T section bears against tie* — Inside angle between rib and stem is rounded to compress tie fiber; prevents cutting of tie.



STRIKING FACE provides a perfect target for fast, accurate application . . .

OVERDRIVE STOP assures proper application — everytime. Custom manufactured to fit all types of rail regardless of condition.

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CHICAGO • NEW YORK • DENVER • ST. LOUIS • BOSTO
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Railway TRACK and STRUCTURES

NEWS NOTES . . .

. . . a résumé of current events throughout the railroad world

Estimators expect net income of Class I railroads for the year 1959 to be about $600 million, slightly under 1958's $602 million. Net income of Class 1 roads dropped to an estimated $50 million in October, 1959, which compares with $97 million for the same month in 1958. Net income for the first 10 months last year is estimated at $443 million, compared with $451 million in 1958.

Record loadings of steel and steel-related products may boost railroad earnings in 1960. Inland Steel Company Chairman Joseph L. Block says steel production this year could reach 120 million ingot tons. This is 13 million tons higher than the prior record established in 1955.

The N&W-Virginian merger became official at 12:01 am December 1. Seventy minutes later, two Virginian diesel units moved 200 loaded coal cars from Abilene, Va., over to the N&W, west of Crewe. However, it will be another year before completion of new trackage, signals and other changes will permit a completely integrated operation.

A national railroad strike may not take place. This view was expressed by G. E. Leighty, chairman of the Railway Labor Executives Association. If there is a strike, it won't occur until after May 1, he predicted. Mr. Leighty also revealed that a questionnaire had been sent out to potential arbitrators of the railroad-labor dispute to determine whether newspaper publicity had influenced their thinking about featherbedding. A spokesman for the AAR called this poll "a crude insult" to the integrity of the labor-relations specialists, and said "it carries the further insulting insinuation that a board appointed by President Eisenhower could not render a fair report of the facts."

Railroad employment dropped to 783,995 in mid-November—0.25 per cent below the preceding month and 5.6 per cent below a year ago. Biggest decrease was among maintenance-of-way-and-structures employees. The figures were released by the ICC's Bureau of Transport Economics and Statistics.

Running tests were being conducted with a crewless road-switcher located in the middle of the train by a western railroad and two supply companies. The switcher is controlled electrically and by radio from the lead engine. Preliminary tests made a few weeks ago were reported to confirm the feasibility of the operation. The crewless engine, it is said, can be located at any point in the train.

BANTAM RAIL-ROADER (Patent Pending)

...the most versatile, multi-purpose machine you can own

CUTS COSTS ON TRACK AND OFF

The carrier mounted BANTAM Rail-Roader brings new ideas to railroads . . . and the opportunity for real savings on all kinds of right-of-way maintenance, building work, and yard assignments.

This modern crane-excavator is letter-perfect for your needs. It travels quickly anywhere there is work to be done —on track or off. BANTAM's exclusive and simplified retractable dolly wheel design provides easy drive-on at any rail crossing—to put you in position to handle heavy lifts up to eight tons for stepped-up work speeds on such jobs as redecking, bridge restringing, cap changes, and handling and positioning ribbon-rail sections.

Only BANTAM offers you *integrated* design with foolproof rail-wheel operation in a rugged, rubber-tired 6 x 6 carrier that's BANTAM-built for this work. BANTAM's simplified mechanical controls are the easiest acting, most maintenance-free in the industry . . . give fast, safe control of BANTAM's high-speed work cycle. For one-man operation of both crane and carrier, you can have BANTAM's optional low-cost remote control.

More and more railroads are buying the BANTAM Rail-Roader and making immediate important savings. See how you can, too. Ask for the name of your BANTAM Rail-Roader Distributor and new literature.

Rail-Roader updates ribbon-rail setting

The carrier mounted BANTAM Rail-Roader lays 1400-foot sections of main-line rail in record time. The Rail-Roader, with its unique Rail Threader (patent pending) mounted on the rear outrigger (below), makes the threading-in of ribbon-rail between existing tracks a faster, smoother operation. Then, with the old rail removed, the BANTAM positions the new ribbon-rail to gauge in one operation—quickly . . . efficiently . . . safely!

Rail-Roader speeds bridge work

BANTAM's rapid rail travel (special high-speed reversing transmission gives same speeds forward and reverse) gets it to jobs faster—down the track or over the highway. Accurate, safe boom and hoist control plus fast 360° swing hastens such assignments as restringing, redecking, changing caps. For off-track work, dolly wheels are fully retractable, giving you permit-free road travel.

nother BANTAM exclusive design eature, this BANTAM Rail Threader (Pat. ending) mounted on rear outrigger works ith second threader carried by hoist line place rail on roadbed. BANTAM Rail-oader is the *complete* railroad man's g capable of doing more jobs in shorter me. This expands work schedules . . . ts operating costs.

BANTAM work range is virtually unlimited through 11 easy-change BANTAM-built attachments. This one basic tool does pile-driving, excavating, loading and unloading, erecting, scrap-handling, ditching, stockpiling, materials-handling. Furthermore, you can profit from efficient stores-handling operations.

BANTAM Rail-Roader also available as self-propelled model. One-engine, one-man operation with full 11-ton lifting capacity. Travels and works on or off track. Special reverse transmission gives speeds up to 12 m.p.h. in either direction.

RT-258

EW FILM—see BANTAM in action: Arrange a personal howing of new color motion pictures showing BANTAM's mazing job speed and versatility for B&B or track departments.

EW BULLETIN—new, illustrated 2-color bulletin has full formation, specifications and application photos. Write for atalog RR-200.

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284 Park Street, Waverly, Iowa

World's Largest Producer of Truck Crane-Excavators.

More and better reading

A general foreman of bridges and buildings and water service writes:

"Some of the men in gangs stationed at outlying points spend long evenings with but little to do. They have asked for reading material, such as Railway Track & Structures, on technical subjects. Certainly every one would be better off if good literature were accessible instead of comic books. Perhaps greater effort should be made to see that they are supplied with worth-while reading material."

We agree with the thoughts of the writer. Obviously he has a sympathetic understanding of the needs of his men. He recognizes that workers in the ranks are frequently ambitious and above average in intelligence.

As for providing copies of this magazine we offer the following suggestions to our correspondent:

(1) He could clip out this editorial and send it to his engineer of maintenance with the suggestion that the railroad subscribe for copies to be placed in the hands of such gangs.

(2) If Suggestion No. 1 should fail, he might then arrange to have certain copies, which are received in the railroad's general office, earmarked for each of his gangs after the magazines have been read by employees at the G. O.

(3) If Suggestion No. 2 should also fail, he might suggest to his foremen that they canvass their men to see if they are willing to contribute toward a subscription to the magazine for each gang.

Somewhat the same suggestions could apply regarding other suitable trade magazines or text books. At least one railroad provides a small library of such material for certain of its gangs. Other railroads would profit by emulating this practice.

Ahead—A decade of progress for railroads?

During the past year business forecasters have had a field day predicting what was going to happen in the 'Sixties. All of these predictions that have come to the attention of this magazine have had a rosy hue. At least one prognosticator has even referred to the coming decade as the "soaring 'Sixties."

In all of them there is one glaring omission. No matter how carefully they are read no mention can be found of the railroads. Perhaps this is because the forecasters, being so preoccupied with the so-called "growth" industries, are convinced that a "mature" industry like the railroads can't be expected to participate in the benefits of an expanding economy. Anyway (so it is reasoned) the railroads are a backward industry and are fast being superseded by other forms of transportation.

The oracles may have occasion to wish, at some later date, they had taken a closer look at the railroad picture. If they had taken time to do so from their contemplation of, say, the expanding market for baby supplies, they might have perceived that startling and significant changes were taking place in the underlying position of the railroads.

These changes, they would have discovered, grew out of a new attitude that started with top railroad executives and gradually spread throughout the industry. This attitude was partly due to a realization that increases in freight rates had severe limitations as a means of solving the problem of rising costs. Partly it was due to a realization that the troubles of the railroads were not going to be overcome by speeches complaining about unfair and subsidized competition. With this awakening they came face to face with the hard fact that apparently no one, not even unionized railroad employees, cared what happened to the railroads.

The alternatives were, therefore, simple and clear—the railroads could fight for their existence or they could succumb to the forces working against them. They chose to fight. It wasn't a half-hearted decision, such as one that might stem from a conviction that the battle was lost anyway. It was a decision made with the intention of winning. And it was followed by a plan of action that has already become evident in the form of:

(1) Legislation designed to benefit the railroads in several ways.
(2) Stepped-up agressiveness in establishing competitive rates.
(3) A concerted campaign to correct wasteful provisions in labor contracts.
(4) Measures resulting in better, faster service to shippers.
(5) Determined efforts to institute cost-saving methods and equipment.

Meanwhile, the railroads' competitors, notably the truckers, are running into problems of their own. Their costs are up, too, and are headed higher. But on the other hand their opportunities for reducing expenses are extremely limited. Even now many smaller trucking firms are fighting for their lives, and the larger ones are beginning to feel the pinch.

No one expects the railroads will have an easy time of it in the 'Sixties. But it's better than an even bet they will wind up the period in a stronger position than at the beginning. Could be they'll even confound the "experts" by becoming the growth industry of the decade.

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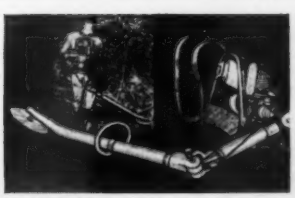

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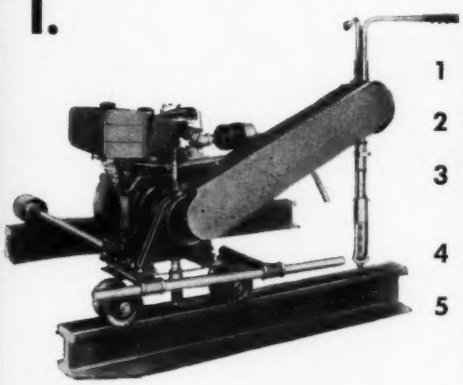

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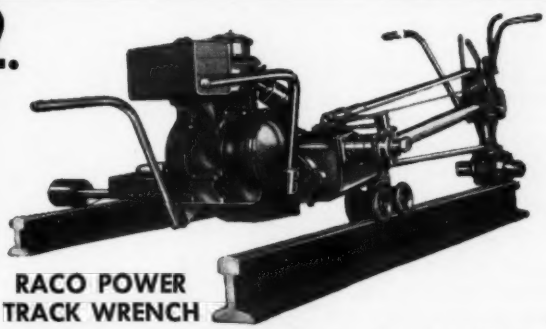

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TIE PLATE LOCK SPIKES

Both the Tie Plate Lock Spike and the Gage Lock Spike hold the rail to gage and avoid plate cutting. When driven to refusal, the spread shank is compressed and binds against the walls of the hole with spring pressure. Play is eliminated — plates are held against movement — rail is held to gage and plate cutting is avoided.

RAIL LOCK SPIKES

Rail Lock Spikes offer the same design as Gage Lock Spikes, but are not offset at the plate surface. The throat protrudes 1/16"—resultant pressure binds the spike against the rail base edge. Play is eliminated between the tie plate shoulders — the rail is held to a true gage.

Forward-looking management can extend the cycle of track structure by using Lock Spikes. One regaging operation costs more than the initial cost of installing Lock Spikes. Specify spikes having a low annual cost—Specify Lock Spikes.

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TIE PLATE LOCK SPIKE

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B&O uses 4-D Wrought Iron's superior corrosion resistance to protect vital installations

1 Pipe for snow melting systems must be *highly* corrosion-resistant. "Rip-up and replace" costs are whopping. That's why B&O used corrosion-resistant Wrought Iron Pipe in the main ramp leading to the roof parking deck of their Chelsea Freight Station in New York City.

2 The freezing, thawing and abrasive action of salt water and debris can create a costly replacement problem on unprotected concrete piers. B&O's solution on Bear Creek Bridge piers in Baltimore was to encase the vulnerable "splash zone" with Wrought Iron plate.

3 Corrosion is a particularly critical problem near salt water. Damp, salt-ladened air can corrode ordinary pipe materials to rusty shadows. To check corrosion, B&O used durable Wrought Iron Pipe for this sprinkler system at Pier 12 in Philadelphia.

4 Electrical conduit must withstand the wear and tear of corrosion, shock and vibration. On the B&O Bridge over the Cuyahoga River near Cleveland, vital power lines have the permanent protection of hot-dip galvanized Wrought Iron Pipe—a standard A.R.E.A. specification.

5 Bridge deck plates really take a beating. Run-off water and corrosive drippings from coal and refrigerator cars take any metal to task. Wrought Iron's resistance to corrosion and fatigue recommended its use on B&O's O'Donnell Street Bridge in Baltimore.

Write for *Wrought Iron for Railroads.* A. M. Byers Company, Clark Building, Pittsburgh 22, Pennsylvania.

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Baltimore & Ohio . . .

Gets set for the '60's

Early in 1959 an interesting annnouncement was made by the Baltimore & Ohio. It said the road had acquired $3½ million worth of equipment to mechanize its track forces. Not only was this an exceptionally large amount of such equipment for a railroad to acquire at one time but the transaction had another distinguishing characteristic —all of the equipment involved was obtained on a lease basis.

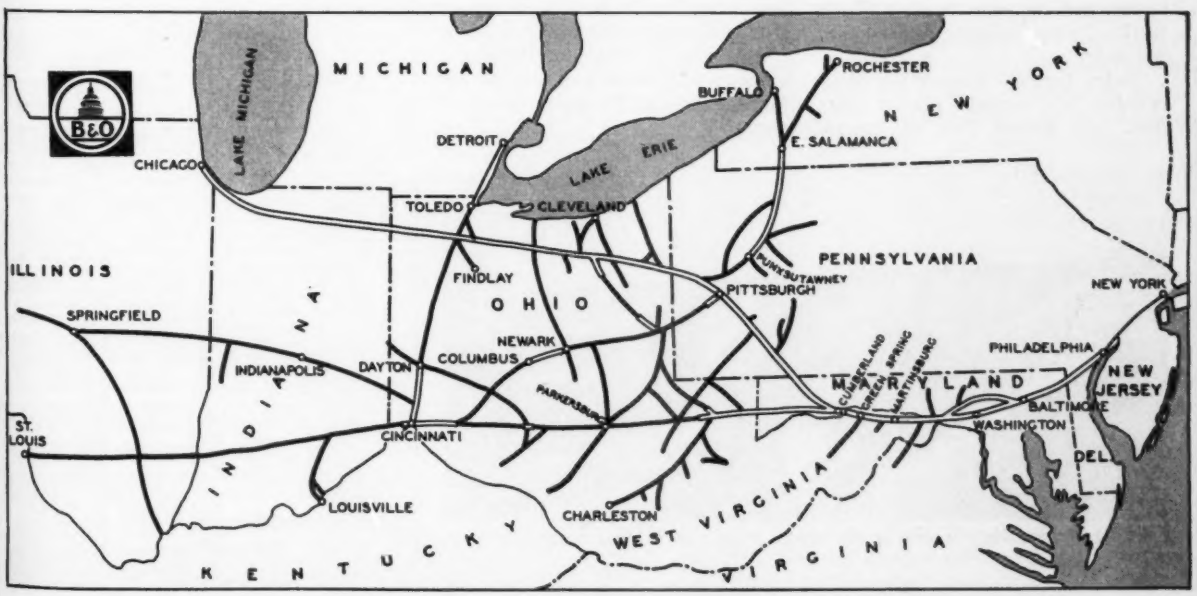
News of this character is evidence of deep and significant changes in progress on the particular road. It generally implies a sweeping reorganization of the M/W setup and fundamental changes in maintenance policies and practices. These in turn are evidence that the road has achieved a separation from tradition and has adopted a course of action based on definite goals in the way of greater economy and efficiency.

To those interested in railway engineering techniques the recent happenings on the B&O suggest many questions. What—and who—was behind the apparent revolution that has occurred? What changes were made in the basic M/W organization? What types of equipment were acquired and how will it be assigned and used? What about the labor relations angle?

These and many other questions pertaining to B&O track and track-maintenance practices were put to engineering officers of the road by this magazine. But the questioning didn't stop here. It may be reasoned that a railroad that has charted such a revolutionary course of action with respect to track practices has also adopted an equally aggressive attitude toward other aspects of the fixed properties. Accordingly, the questioning was broadened to include the road's practices relative to the construction and maintenance of buildings, bridges, port facilities, signals and M/W shops.

The entire feature section of this issue is devoted to articles based on answers to these questions. The information is not necessarily offered as an example for other roads to follow but rather as an example of how one road has set out to solve its particular engineering and maintenance problems. Basically, it's the story of what the B&O has done to "get set for the '60's."

By R. E. DOVE
Associate editor



B&O serves rugged country, carries heavy traffic

Being the first commercial railroad in the U. S., it has a rich historical background. Early stone-arch bridges are still in use. Traffic load is more than 100 million tons of freight annually, about 65 per cent of which originates on line.

On May 22, 1830, a section of track 14 miles long was completed between Baltimore and Ellicott's Mills, Md. Built by the B&O this line was America's first commercial railroad.

From this small beginning the B&O has grown into a system having a roadway 5,917 miles long and comprised of 11,525 miles of trackage, including sidings and other tracks. The original 14-mile route, now known in part as the "Old Main Line," is still in use. Also, at least two of the early double-track stone-arch bridges in the Baltimore area—the Thomas viaduct over the Patapsco river and the Carrollton viaduct over Gwynn's Falls stream—are still carrying the road's freight traffic.

The first public railroad on this continent was built by grading a shallow trench and filling it with rubble stone. Blocks of granite or other suitable stone about one foot square were carefully placed on the rubble. These supported the "rails," which consisted of iron bars or straps fastened to the stones by bolts. Later the bars were replaced by iron rails imported from England.

The first stone laid for the B&O was placed on July 4, 1828, by Charles Carroll, the last surviving signer of the Declaration of Independence. This stone has been preserved and can now be seen at the B&O's Transportation Museum in Baltimore.

Today, the B&O is a heavy-tonnage railroad that annually carries more than 100 million tons of freight. About 65 per cent of this tonnage originates on its own lines. Since about 65 per cent of the total tonnage carried is comprised of products of mines, particularly coal, ore and fluxing stone, with about 28 per cent consisting of manufactured and miscellaneous products, the track and structures are subjected to heavy wheel loads.

From Harper's Ferry, W. Va., to Parkersburg, on the St. Louis line, and from Cumberland, Md., to Pittsburgh, Pa., on the Chicago line, the Baltimore & Ohio is in a generally mountainous terrain. The heaviest grades and curvatures in this territory exist between Cumberland, Md., and Grafton, W. Va., and Connellsville, Pa., where main track curvature ranges up to 11 deg, with average curvature being about 5 deg. Branch line curvature ranges up to 20 deg.

Main-line gradients in this area in some places are in excess of 2 per cent compensated for curvature.

There is little opportunity for the road to straighten out its alinement or reduce grades in the mountains due to the quantity of solid rock.

It has been possible, however, to make some improvements in line and grade. For example, when a portion of the Richwood branch line, lying in the heart of the Allegheny mountains, had to be raised to higher ground because of the construction of a government dam, the B&O was quick to dig into its own pockets for funds to improve the grade and alinement.

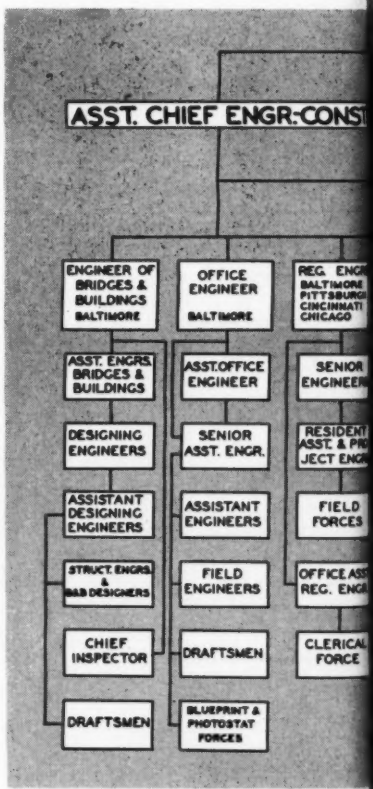
CARROLLTON VIADUCT is one of the oldest stone-arch bridges on the railroad.

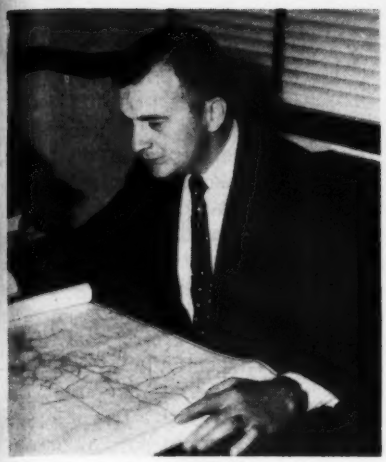
C. R. RILEY
Chief Engineer

New team he

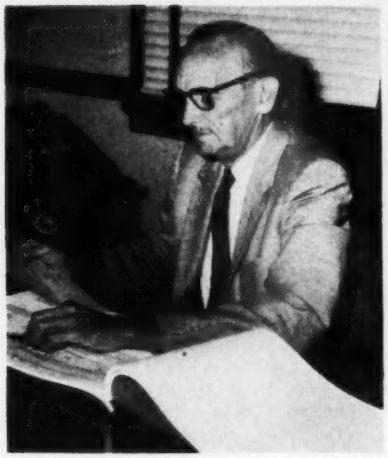
● "A vital organizational step was made by the management of the Baltimore & Ohio on June 1, 1958," says C. R. Riley, chief engineer. "This step was the consolidation of the engineering and maintenance-of-way departments."

"The aim of the consolidated de-





C. E. JACKMAN
Assistant Chief Engineer—Maintenance



E. F. WRIGHT
Assistant Chief Engineer—Construction

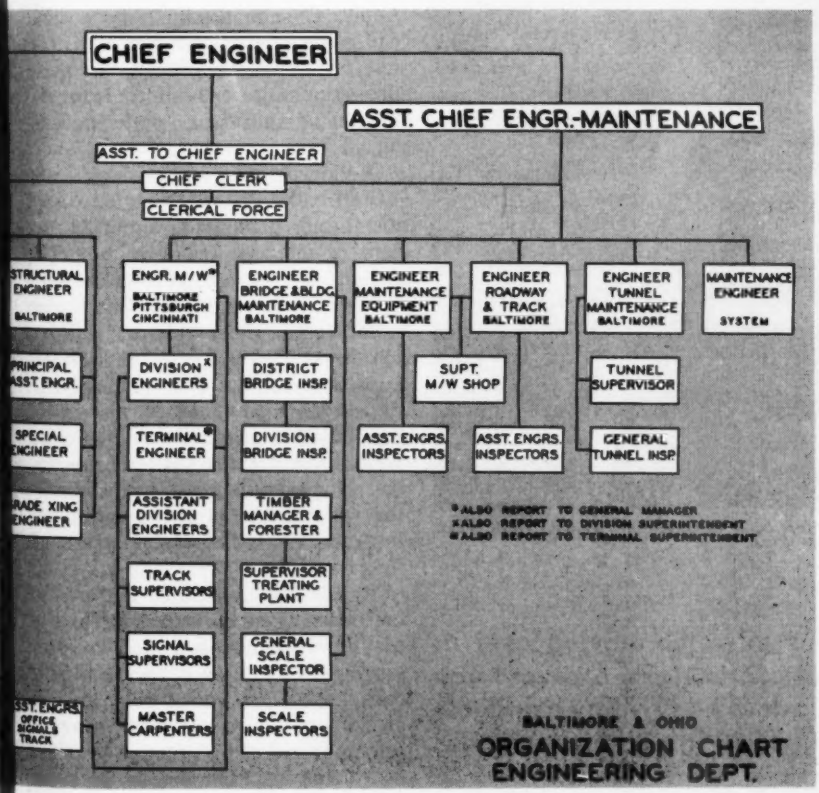
B&O Gets set for the '60's

With engineering and construction matters now coordinated under a single head, the B&O has embarked on a modernization program aimed at lower costs. Chief engineer looks to future with "optimism and confidence."

heads revamped setup, charts future

partment," explains Mr. Riley, "is to co-ordinate the initiation of ideas applying to the design, construction and maintenance of the road's property, using the latest methods and procedures. The results so far derived point to greater economy in both construction and maintenance."

Up until June 1, 1958, the B&O had a separate department for handling engineering and construction, and one for handling all maintenance matters. Each was headed by a chief engineer. Now there is a single department with one chief engineer, Mr. Riley. Serving with him in top supervisory capacities (see diagram below) are E. F. Wright, assistant chief engineer-construction, and C. E. Jackman, assistant chief engineer-maintenance.



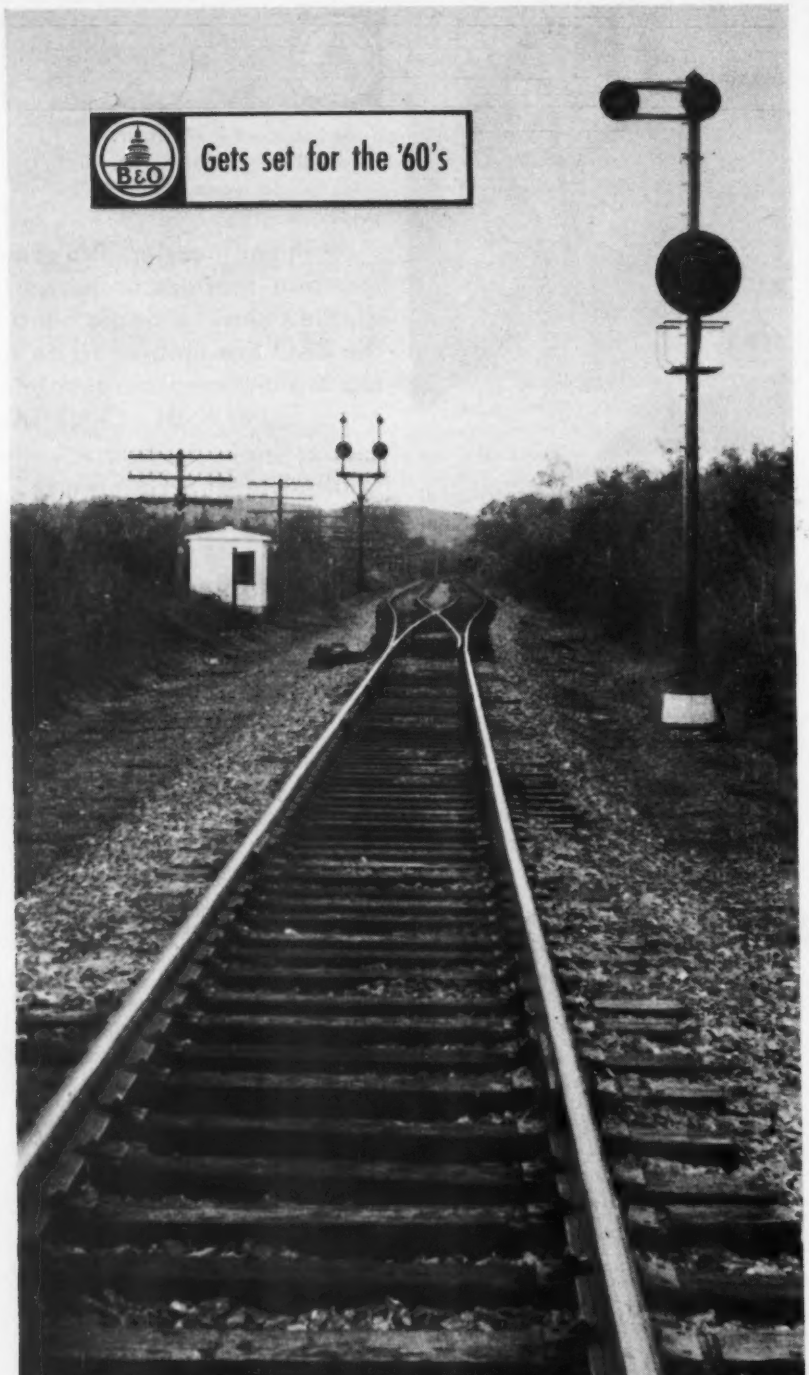
In the eighteen months that have gone by since the reorganization went into effect, the new regime has charted a broad program of modernization and has already taken important steps along the road to effectuation of that program. The basic objective is to place the company in a position to hold the line on maintenance costs in the 1960's and later years, while maintaining the properties to satisfactory standards.

"It is with optimism and confidence that my associates and I approach the opportunities which will come in 1960 to apply modern methods to our design, construction and maintenance problems," declared Mr. Riley.

As head of the construction section of the reorganized department, Mr. Wirght and his staff are responsible for the planning, designing and construction of improvements. He is custodian of all records relating to the physical property of the railroad. His section also represents the railroad in engineering negotiations with outside parties, including other railroads, public agencies, etc.

Mr. Jackman and his staff in the maintenance section are responsible for the safe, efficient and economical maintenance of the fixed properties, including roadway, track, structures and signals.

Heavy to



HEAVY RAILS and stone or crushed-slag ballast help in obtaining a substantial track.

With 100 million tons of traffic moving over its lines annually, much of it consisting of coal and iron ore, the B&O has had to adopt heavy-duty standards for its track structure. The 140-lb section comprises about 80 per cent of the new rail acquired.

● In considering the character of the B&O's track structure, it's necessary first to take a quick look at the amount and kind of traffic carried and the speeds of trains.

Average annual tonnage is more than 100 million tons, with coal and iron ore comprising a considerable portion of the total. The coal movement is preponderantly eastward toward Baltimore, but the ore moves north and westward. The result is heavy wheel loads in both directions.

Speeds of freight trains are limited to 50 mph in mountain territory, and 60 mph elsewhere. Also having a bearing on track standards is the fact that curves are numerous and sharp in the mountains and the gradients are relatively steep.

For this traffic and conditions the B&O has settled on the following track standards:

Rail—Of the 11,525 miles of track maintained, there are 7,330 miles of main track. About 30 per cent of the main-track mileage is "new-rail" territory. This is comprised of the main tracks between Philadelphia and Chicago, Cumberland, W. Va., and St. Louis, Cincinnati and Toledo, and Columbus, Ohio, and Newark. The rail recovered from relays on these lines supplies all the rail needs for the remaining main tracks, yards and sidings.

Rail weights purchased are the 140-lb and 115-lb RE sections, with the former comprising about 81 per cent of the new rail acquired. The B&O has not adopted continuous welded rail as a standard. The reason is the fact that the road has a great number of curves where rails will not last more than a few years. These curves are maintained by the use of repair and transposed rail; therefore welded rail is not considered economical. However, the road is experimenting with heat-treated rails on curves in excess of six degrees to determine their economy.

Repair and transposed rail is used on the heavy curves to take advantage of the work-hardened ball in prolonging its service life. Since 1955 a considerable amount of rail has been ground out of face with the Speno rail-grinding train. This practice has been instrumental in eliminating corruga-

tonnage traffic dictates track standards

tions, engine burns and rail batter. One result has been a considerable reduction in the amount of welding done to build up battered rail joints.

In general, before repair rail is relaid, it is sent to the road's rail-cropping plant at Martinsburg, W. Va., where the ends within the joint bar area are removed and the rail ends redrilled. This not only eliminates the batter but results in better joint-bar fit.

Joint bars—The 36-in, 6-hole, toeless headfree joint bars are standard on the B&O with new rail. The 140-lb bars are fastened by 1-in by 6-in heat-treated bolts and the 115-lb by 1-in by 6-in bolts. Triflex lock washers are used on new rail.

For repair-rail programs, new, oversized or reformed bars are generally used on 100-lb and heavier sections.

Tie plates—The current standard for tie plates for the 140-lb rail section is the double-shoulder, 8-in by 14-in flat-bottom plate with 8 holes. For the 115-lb new rail section, the standard is the double-shoulder 8-in by 13-in flat-bottom plate, with 8 holes.

Tie plates are fastened to the ties by ⅝-in by 6-in cut spikes. In addition to the two line spikes on main tracks where curves are 2 deg and greater, the plate is secured by two hold-down spikes. Repair spikes are utilized for the hold-downs. Tie pads are not used in standard track except some experiments have been made under insulated joints. Tie pads are used when bridge decks are replaced.

Rail anchors—Several makes of rail anchors are used. These include the Improved Fair, Unit, Bulldog, Woodings, and Compression clips. Standard practice is to install eight per rail, both on single and multiple tracks. However, additional anchors are applied in special cases where grades, turnouts and railroad crossings are involved.

Ballast—Granulated slag is used as sub-ballast, with a minimum thickness of 6 in. A good grade of crushed hard limestone is used as ballast between Philadelphia and Grafton, W. Va., between Cumberland, Md., and Chicago, and between Newark, Ohio, and Columbus. In general, the remainder of the main tracks are ballasted with crushed slag from steel mills. Branch lines are also ballasted with crushed slag except where cinders are available.

Ballast shoulders and center ditches are cleaned as necessary under contract. A limited amount of shoulder cleaning is done by company forces using a Super Mole machine.

Crossties—All ties are purchased in accordance with AREA specifications and are 8 ft 6 in long. No. 4 and No. 5 ties are used in main tracks. No. 3 and No. 3A ties are used on branches and on heavy-duty yard leads. No. 1 and No. 2 ties are used in side and yard tracks. The ties are all treated with a creosote-petroleum solution by Koppers Company at plants located at Green Spring, W. Va., and Finney, Ohio. Ties are mostly oak and mixed hardwood species.

The road has a number of test tie installations, some going back as far as 1920. Records are maintained as long as any of the ties remain in the tracks. A test installation of prestressed-concrete crossties is contemplated.

Turnouts—The No. 8, No. 10, No. 16 and No. 20 turnouts are standard on the B&O. No. 8 turnouts are generally used in yard areas; No. 10's are used in certain ladders, industrial tracks leading off of main and running tracks and slow-speed main and running track crossovers. No. 16's are used for ends of passing tracks and double tracks as well as crossovers where medium speed prevails.

No. 20 turnouts are used for end of double track where higher speeds prevail. In yard and industrial tracks Nos. 8 and 10 self-guarded manganese frogs are used, equipped with 13-ft and 16-ft 6-in switches, respectively. No. 10 spring and railbound-manganese frogs are used in main and running tracks. The No. 16 frogs are of the railbound-manganese type used with 24-ft switches. The No. 20 frogs are of the railbound type used with 39-ft curved switch points. All other switch points are straight. Except where self-guarded frogs are used all turnouts are equipped with one-piece manganese guard rails.

In switches back to where ordinary tie plates can be used, the road has standardized on twin-tie heel plates because these can be used with any length of switch. Each switch rod is usable on any size switch and with any weight of rail. This is accomplished by establishing a compromise between the various switch lengths and sections of rail. Twin-hook plates are used as standard under all frogs.

Weed and brush-control activities

The B&O owns and operates 13 weed-spraying outfits, each consisting of a flat car on which spray equipment is controlled by 3-in pumps. Chemicals are purchased mixed and in tank-car lots. Where conditions permit arsenical-type chemicals are used. In territories where this type of spray would be injurious to livestock or wild game, non-poisonous chlorate types of chemicals are used.

Often the spray equipment is made a part of a regular work train in order that other work can be accomplished. This may be unloading materials or the loading of scrap along sidings and station areas when the spraying operations are interrupted by main-line traffic. The road admits that this practice does not get the maximum spraying done per day but it makes for better use of the work trains and reduces overall maintenance costs.

Some state laws, as in Maryland and West Virginia, still require the railroad to burn the right of way in certain locations. In West Virginia the road is obligated to plow furrows in addition to burning.

For vegetation control in yards the B&O began using the soil-sterilant type of chemical in 1956 and reports that it has been found to be very effective. The soil sterilant can be hand applied, eliminating necessity for moving cars from tracks.

Brush control presents a problem with the fast-growing species such as sumac and willow being the greatest nuisance. Although no brush spraying was performed in 1958 and 1959, the railroad contemplates a fairly extensive program in 1960.

B&O Gets set for the '60's

Trucks for all gangs

Main-line section gangs—1-ton panel trucks.

Light-branch-line sections—½-ton pickup trucks with flanged-wheel attachments.

Extra gangs—2½-ton stake-body trucks, many with winches or hoists.

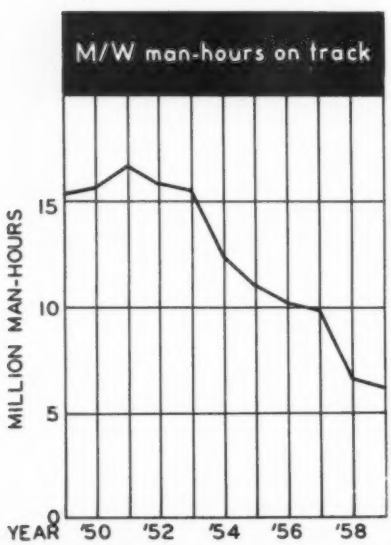
Supervisors—½-ton pickup trucks with flanged-wheel attachments.

Field mechanics—1-ton dual-wheel trucks with compartment-type bodies.

Total trucks acquired—100—½-ton pickup trucks, 168—1-ton panel trucks, 204—2½-ton stake-body trucks, 17 compartment-type trucks, and 4—2½-ton dump-body trucks (for use in ballast reclamation).

Track forces regrouped, mechanized to

Like all roads the B&O was faced with the need for putting its track maintenance on a more efficient basis. The situation called for complete mechanization on a systemwide scale, but before this could be accomplished it was necessary to overhaul the existing traditional section-gang and extra-gang setup. In the new organization all gangs travel in trucks.



● June 1959 will be remembered by the track forces of the B&O. In that month the reorganization of these forces was completed on a systemwide basis and their work was fully mechanized.

The railroad wanted to take advantage of the cost savings possible through full mechanization of its track forces. But its section-gang and extra-gang setup did not lend itself to the most efficient use of machines. Reorganization, then, became a necessary prerequisite to mechanization.

Pilot program points way

In 1958, after negotiations with the Brotherhood of Maintenance-of-Way Employes, a pilot program of track-force reorganization and mechanization was initiated on the Baltimore East End division. Including a number of branch lines, this division totaled 458 miles of track. The pilot program consisted of substituting 10 section gangs and 9 extra gangs for the 37 section gangs and 4 extra gangs then in existence on the division. The new units were furnished with the necessary equipment and their operations were studied for several months.

From the experience gained on this division, a force rearrangement plan was developed for the entire railroad and details of the necessary equipment to mechanize all units were worked out. Negotiations were resumed with the Brotherhood and an agreement, satisfactory to both the union and the railroad, was concluded.

The scope of the program is illustrated by the fact that, in putting it into effect, the railroad acquired a total of $3½ million worth of equipment, all of which was obtained on a lease basis through Morrison Plan, Inc. The lease agreement covers a total of 1,359 pieces of equipment, including 428 units of track equipment and machinery, 520 units of automo-

Emphasizes on-the-job training

The Baltimore & Ohio conducts several employee-training courses. Two of these—Employee Training and Technical Graduate Training—have proved particularly useful in training employees for supervisory positions in the engineering department as well as in other departments.

In the Employee Training course, the trainees are detached from their regular duties for six months and are given the opportunity to observe and learn about all railroad operations over the entire system. Naturally, it is possible to afford this opportunity to a limited number of employees only. Graduates from the Employee Training course include men now filling the positions of assistant engineer of buildings, engineer of roadway and track, bridge structural engineer and resident engineer.

The Technical Graduate Training course was inaugurated on the B&O in 1950 and currently runs for 24 months. Presently the engineer of maintenance equipment, maintenance engineer, three division engineers, seven assistant division engineers, six assistants to division engineers and a field engineer are graduates of this course. At present there are 10 graduates from various engineering colleges now being given training in this course, and a number of others are on leave because of military service.

Many line-of-road employees are given the opportunity to attend short term schools conducted by various manufacturers to better qualify them for their particular line of work. Many of the railroad's welders are among this group.

to reduce costs

tive equipment and 411 units of truck accessories, such as bodies, winches, hoists, and flanged-wheel attachments.

The B&O has 17 maintenance divisions and 69 supervisor's districts. Under the new agreement the present division and subdivision limits were not changed, but the number of sections was reduced from 852 to 198. On the other hand, the number of extra gangs was increased from 81 to 204.

Formerly, about half of all out-of-face work was handled by the section forces. All such work is now carried out by mechanized extra gangs. They are assigned to work on a supervisor's territory. The primary duties of the section forces now are to inspect track and make minor repairs.

Main-track sections in the new set-up average from 50 to 60 miles of track. Light branch-line and yard sections average from 60 to 100 miles of track each. The yard sections are manned generally by a foreman and two trackmen; all others generally by a foreman and one trackman.

Men for the extra gangs were obtained through the rearrangement of the sections. Each supervisor has two or three of the mechanized gangs, which are comprised of a foreman and 5 to 15 men, depending upon the type of work to be performed.

Mobility was given to the track forces by furnishing each gang with a truck. All section gangs, with the exception of 31 on light-branch-line sections, were each assigned a 1-ton panel truck. The sections on the light-branch-line sections were each assigned a ½-ton pickup truck having a flanged-wheel attachment.

Each of the extra gangs has a 2½-ton stake-body truck. The trucks assigned to gangs working in major yard areas are each equipped with a 4,000-lb Daybrook hoist. Each supervisor was assigned a ½-ton pickup truck equipped with a flanged-wheel attachment. At least one of the 2½-ton trucks assigned to the extra gangs under each supervisor is equipped with a 4-ton Braden hoist.

In addition, 17 mechanic's trucks were obtained for use by a corps of field mechanics employed to maintain the equipment. Four dump-body trucks were required to work as a unit in connection with ballast reclamation resulting from a track-removal project in CTC territory. The mechanics' trucks are 1-ton dual-wheel units with special compartment-type bodies. They each carry a small air compressor for powering air tools and for inflating tires.

The entire program required 100—½-ton pickup trucks, 168—1-ton panel trucks, 204—2½-ton stake-body trucks, 4 — 2½-ton dump-body trucks and 17 compartment-type trucks, as well as the hoists, winches and flanged-wheel attachments installed on them. The rail-wheel attachments are manually operated. The trucks are all of one manufacture so as to save on maintenance and to reduce the necessary stock of parts.

Machines in 'package' units

Most of the other track equipment acquired was assigned to divisions as "package" units. For example, each division is assigned a set of units required for laying rail and another set for making tie renewals and surfacing track. In addition, each supervisor of road is furnished with a set of commonly used machines, and these are sometimes used to augment the rail laying unit. They include a power rail drill, rail saw, bolting machine and hydraulic track liner.

As a result of this reorganization and mechanization, the road feels that it now has a track force which will produce more work at lower unit costs. Through mechanization and improved methods it has been possible to reduce the number of man-hours necessary for track maintenance.

During the reorganization of the track forces the management of the road worked closely with the Brotherhood of Maintenance of Way Employes. During the many meetings held with union leaders for the purpose of negotiating the new agreement each point brought up was settled by conferees as a result of those representing both labor and management having been vested with that authority. Thus, no unresolved questions were carried away from the room for later deliberation before reaching a decision.

Recently division engineers have been given authority to settle minor claims, thereby eliminating unnecessary delay heretofore resulting from referral of such claims to the central office. Major claims and appeals from the decisions of the division engineer are made to the central office.

B&O **Gets set for the '60's**

How the new track setup works

With the track forces now completely mechanized, tie renewals and surfacing have been placed on a cycle basis. This work is done by small extra gangs using "package" units of equipment. In 1959 these gangs surfaced an average of a half mile of track per day. Total production for the year was 2,100 miles of track raised, second only to 1957.

● Along with the reorganization and mechanization of its track forces, the Baltimore & Ohio has mapped out a cycle maintenance program for all its lines.

The cycle for surfacing varies from 4 to 12 years, depending upon the amount of traffic and the importance of the line. While the cycle for making tie renewals has been tentatively set at three years, this cycle must be more flexible to suit actual tie conditions, making some adjustment in programming necessary.

For instance, if a gang is surfacing track where a five-year surfacing program has been established, only the crossties that will not last three more years are renewed at that time. It is recognized that, three years later, some ties will have to be spotted in to keep up the general tie condition.

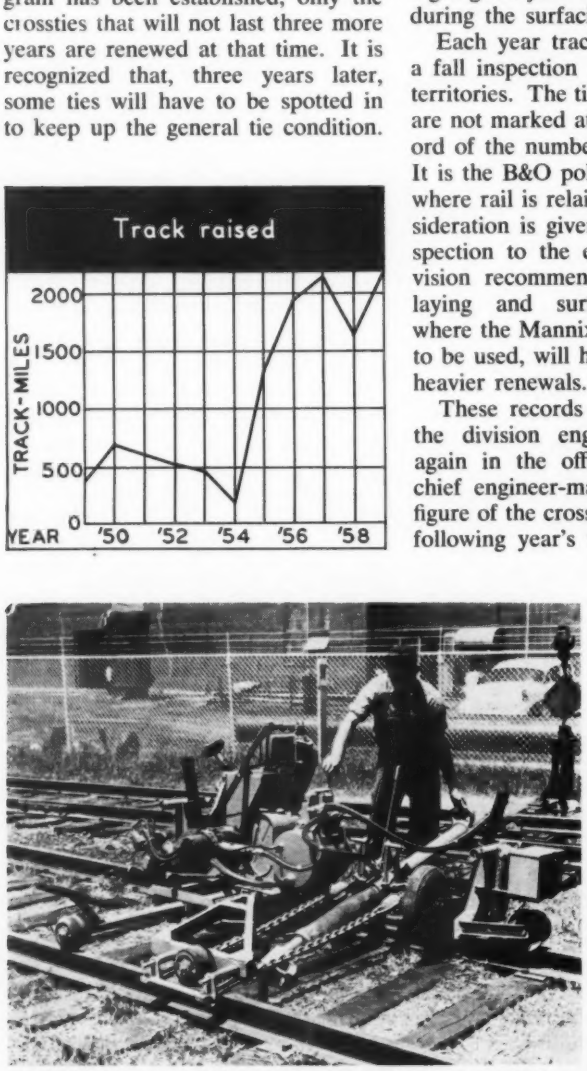
However, a thorough job of maintaining a good joint-tie condition is done during the surfacing operation.

Each year track supervisors make a fall inspection of the ties on their territories. The ties requiring renewal are not marked at the time but a record of the number required is made. It is the B&O policy to surface track where rail is relaid. Hence, due consideration is given at the time of inspection to the effect which the division recommendations for rail relaying and surfacing, particularly where the Mannix undertrack plow is to be used, will have on the need for heavier renewals.

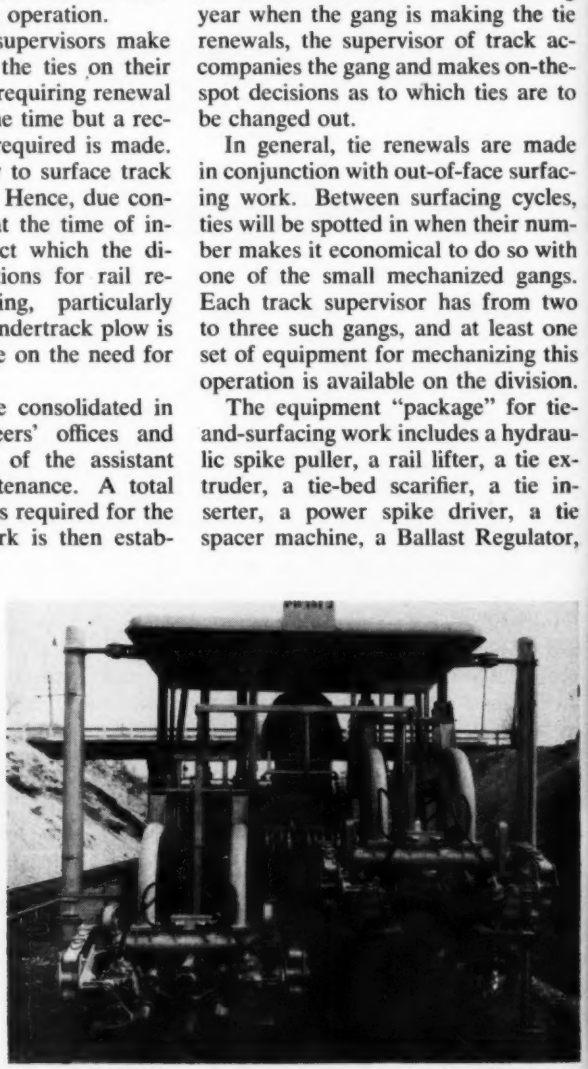
These records are consolidated in the division engineers' offices and again in the office of the assistant chief engineer-maintenance. A total figure of the crossties required for the following year's work is then established. Each supervisor is informed of his tie allotment. The following year when the gang is making the tie renewals, the supervisor of track accompanies the gang and makes on-the-spot decisions as to which ties are to be changed out.

In general, tie renewals are made in conjunction with out-of-face surfacing work. Between surfacing cycles, ties will be spotted in when their number makes it economical to do so with one of the small mechanized gangs. Each track supervisor has from two to three such gangs, and at least one set of equipment for mechanizing this operation is available on the division.

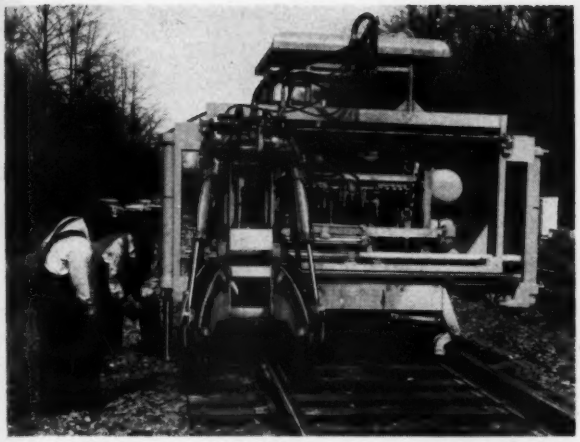
The equipment "package" for tie-and-surfacing work includes a hydraulic spike puller, a rail lifter, a tie extruder, a tie-bed scarifier, a tie inserter, a power spike driver, a tie spacer machine, a Ballast Regulator,



TIE RENEWALS are now handled by mechanized gangs which can do this work more economically than the former section gangs.



TRACK RAISING and tamping is programmed on a cycle basis. Here, a production tamper is working on the Cumberland division.



SPOT TAMPING also is scheduled on a system basis. For this purpose the road acquired 10 sets of spot tampers and liners.

TIE HANDLER works behind plow and places ties in position for insertion. Machine tows push car having spiking equipment.

and in some instances, where the demand justifies, a power tamping machine, and a track liner. Hand jacks are used for raising track. By having this set of machines, either tie renewals or surfacing, or both in combination, can be done on a mechanized basis.

Where necessary the track is spot-tamped between surfacing cycles. For this work a spot tamper and a track liner are used.

Surfacing programs are initiated on the divisions. Each year the division engineer sends a statement to the assistant chief engineer-maintenance, listing, in the order of preference, the raising and surfacing work, as well as the spot tamping, he recommends for the following year. Using these recommendations as a basis, a surfacing program for the road as a whole is worked out.

Beginning in 1955 the amount of track raised annually showed a sharp increase (see chart). For the last five years the road has raised an average of 1,849 miles of track a year.

Watch production closely

The performance of the tie-and-surfacing gangs is watched closely. Each month a statement showing the production of each gang is issued by the office of the assistant chief engineer-maintenance to all concerned. This statement shows by gangs the number of days a production tamper was worked during the month, the feet of track tamped per day and for that month, the average daily on-track time, the feet per hour of tamping time and the feet of track tamped per man-day. An accumulative statement for the year is issued at the same time. The highest performance in each column is underscored as special recognition to the gang making that record. Besides being informative, these statements serve to stimulate those gangs that are falling short of average performance.

In 1959, the B&O had 23 tie-and-surfacing gangs using Track Maintainers and 3 such gangs using McWilliams tampers. Most of them started work sometime between the middle of February and the middle of March and they worked until freezing temperatures in November made such work uneconomical.

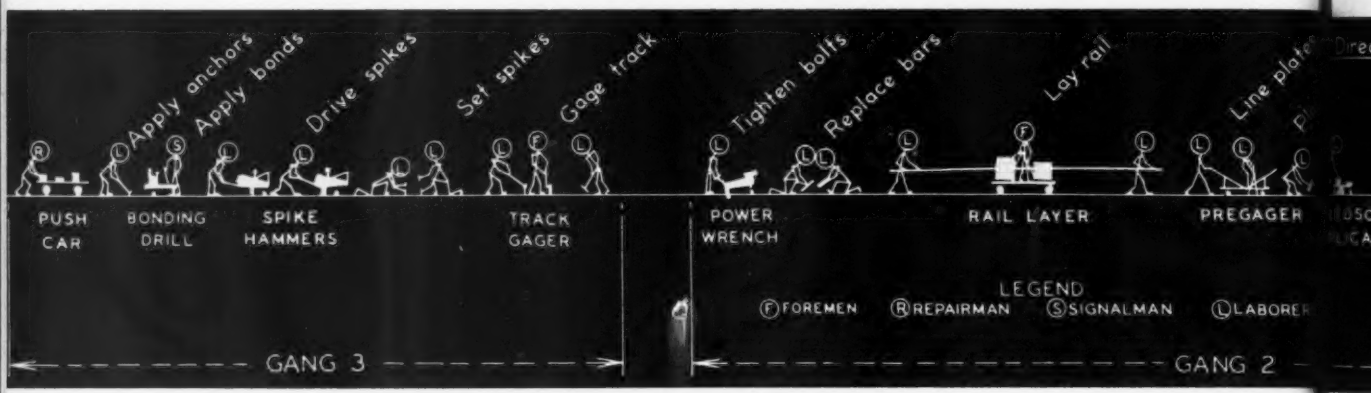
These gangs averaged one-half mile of track tamped per day. Where tie renewals and traffic interruptions were not numerous, one gang tamped as much as 0.86 mile in one day. For all gangs, the average feet of track tamped per on-track hour was 670.

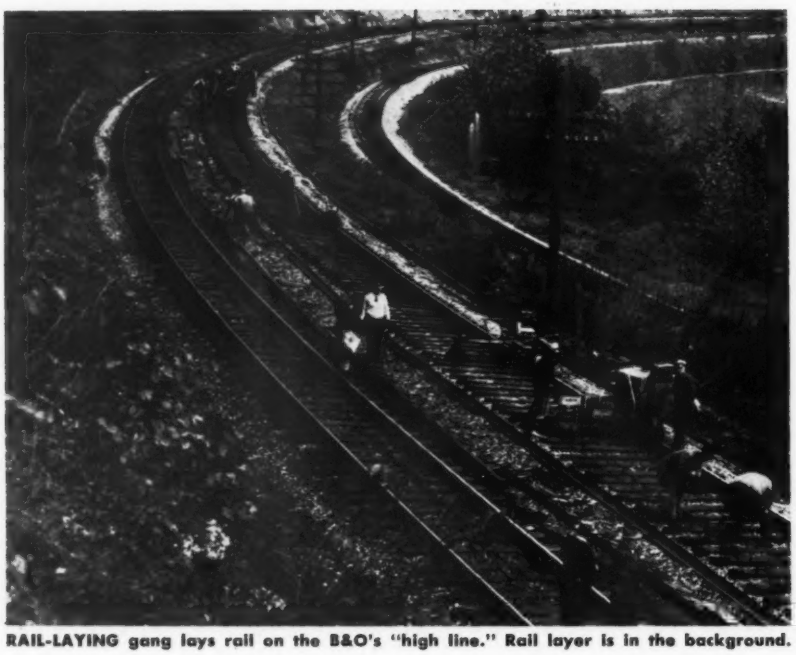
BALLAST of either crushed slag or hard limestone is used. A Ballast Regulator pulls the material in position for the tamper.

DRAINAGE is improved, where necessary, by using a Mannix plow to remove foul ballast, then raising track on fresh ballast.

LAST OPERATION is the application of the rail-head bonds. A signalman and a helper accompany the rail gang for this work.

TRACKMEN from first gang are used to form third unit of n gang. They drop back when necessary to coordinate the wo





RAIL-LAYING gang lays rail on the B&O's "high line." Rail layer is in the background.

How rail is la

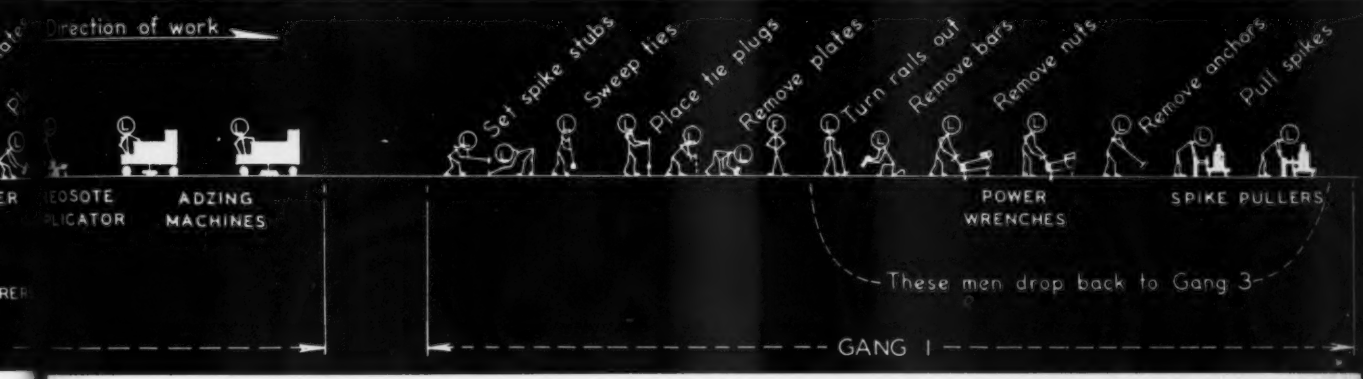
● In track work on the B&O, foremen hold seniority over one division engineer's territory and trackmen hold seniority over one track supervisor's territory. Past practice, when larger forces were employed, was to use gangs of up to 125 men for laying rail. When the track forces were reorganized a system was devised whereby all of the rail laying would be performed by the bunching of two or three of the track supervisor's extra gangs, to form a mechanized rail-laying unit of approximately 30 men.

In the new setup, each division is provided with a "package" outfit of rail-laying machines. This includes two spike pullers, two power wrenches, two adzing machines, a creosote applicator, a Meco rail-laying ma-

TIE PLATES are straightened and gage spikes are set by a portion of third gang.

NEXT GANG adzes ties, applies plates, lays rail and bolts on the joint bars.

HEAD GANG removes anchors, bolts and spikes, turns out old rail and drives plugs.



RAIL GANG is formed by bunching two or three small gangs together. The gang shown on this diagrammatic sketch is typical and is comprised of 3 foremen and 26 men.

is laid with small gangs

chine, a pregager, a track gager, two spike hammers, a Kershaw utility crane and a bit grinder. Since each supervisor also has certain machines assigned to his use, these can be used to supplement the "package" outfit when necessary. These include a power rail drill, rail saw and a bolting machine.

A typical rail-laying gang is shown on the accompanying diagram. In this instance, the supervisor bunched three of his small extra gangs to produce a force of three foremen, 24 laborers, a repairman and a signalman.

Prior to the grouping of this force, the supervisor had one of his extra gangs distribute the rail, bars, plates and other track material. He also had this gang oil the ends of the rails and attach the bars on one end of the new rail.

The work is divided into three work operations—removing the old rail, laying the new rail and gaging and spiking. Actually this supervisor starts out with two work units. When it comes time to start closing up, he breaks up the head work unit to form the third unit.

The head-end unit, comprised of a foreman and 13 laborers, removes the rail anchors, nuts and bolts, bars and spikes. This unit also throws out the old rail, removes the tie plates, drives the broken spike stubs, lowers the crib ballast, sweeps the tie-plate seats of the crossties and sets and drives the tie plugs.

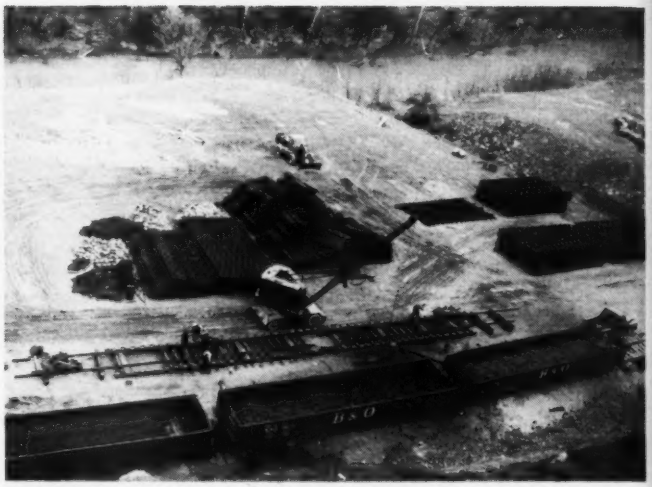
The second work unit adzes the tie-plate seats, applies creosote, places and alines the tie plates, lays the new rail, applies the joint bars and tightens the bolts.

B&O Gets set for the '60's

The rear work unit gages and sets the gage spikes, sets and drives the remainder of the spikes and applies the rail anchors. Coincident with this work, a signalman applies the rail bonds. A repairman brings up the rear with a push car on which are mounted a bit-grinding machine, a portable rail saw, a power track drill, water bucket, etc.

This gang of 29 men can lay about 5,300 ft of rail per day.

LOCOMOTIVE CRANE hauled loaded cars to end of track, and used a special spreader to place the panels.



PANELS were constructed two at one time in a template frame. Foreman and six men completed two panels each hour.

Builds spur by the panel method

B&O Gets set for the '60's

● Last year the B&O constructed a five-mile spur track with prefabricated track panels.

This method of track construction was prompted by the desire to make a cost comparison between panel and standard track construction methods as well as to expedite construction. The grading was progressed from several points to expedite the work. However, a large cut about ¾ mile from the starting point precluded any track construction beyond this cut until its completion.

It was decided that a great deal of time could be saved if the track were to be prefabricated in complete panels, one rail length long, and set on the roadbed by a locomotive crane. While this method placed the joints opposite each other, this condition was not considered too objectionable because freight trains only were involved, with speeds not exceeding 20 mph.

Construction plans called for a 24-ft subgrade width, with the top 30 in below top of rail. The distance between T.O.R. and subgrade was taken up by an 8-in layer of granulated slag as sub-ballast, 8 in of crushed slag under the ties, and the tie, rail and plate.

As soon as a portion of the subgrade had been completed, the sub-ballast was distributed. This material was unloaded from hopper cars into a pit where a chain-driven undertrack belt passed it to an elevating belt conveyor which loaded it into dump trucks. A portable electrically driven car shaker attached to a tower on skids expedited car unloading. The entire plant was portable and was moved ahead in 3500-ft increments as track construction progressed.

Four 2½-ton dump trucks unloaded the sub-ballast onto the subgrade, where it was spread and leveled by a diesel motor grader having a 12-ft blade. The work force consisted of a foreman, 10 laborers and a motor-grader operator on each of two shifts. The unloading proceeded at the rate of 10 cars per 8 hr.

The panels were prefabricated two at one time in a template frame established near the beginning of construction. This plant was moved forward 3.5 miles as soon as construction progress permitted.

A completed track panel was prefabricated each half hour by a force consisting of a foreman, six laborers and a crane operator. Each panel was comprised of two 100-lb repair rails, cropped to a length of either 30 ft 6 in or 36 ft 6 in, secondhand single-shoulder tie plates and bars, new spikes and bolts and No. 3 crossties. The work was done in two shifts with the assistance of two power spike drivers, a mobile crane and portable floodlights.

The completed panels were loaded 10 high onto flat cars. A locomotive crane, of 25 tons capacity, was used to haul several loaded flat cars to the end of track. Using a special spreader having four rail tongs, the crane picked up a panel, swung it 180 deg and set it on the sub-ballast, where it was bolted to the end of the track.

When all 10 panels were placed the crane picked up one end of the empty flat car, lifted it off the track and set it to one side. After setting off the other end of the empty flat car the crane coupled onto the next loaded flat car and repeated the cycle.

A force of a foreman, four laborers and a crane operator were able to lay 100 track panels a day. Depending on the lengths of the panels, this amounted to 3,050 ft to 3,600 ft of track completed per day.

The ballast was applied from hopper cars in two spreads. After each spread, a Power Jack was used to raise the track. After the second raise, a production tamper tamped the ties. After another light spread of ballast, a Ballast Regulator equalized the ballast and dressed the track.

The work force doing this work consisted of a foreman, seven laborers and two machine operators. They dumped 25 cars of ballast a day and raised and tamped 3,500 ft of track.

CAR-REPAIR SHOP at DuBois, Pa., was converted from a former steam-locomotive shop.

Building forces look to the future

A wide variety of building materials, is used, keeping in mind economy in first cost as well as low maintenance. Many structures are being remodeled with the aim of consolidating facilities and utilizing unused space, and a continuing program for removing unused buildings is being carried out.

● Single and multi-story buildings on the B&O vary in size from small toolhouses to the newly constructed pier shed and offices at Locust Point fruit terminal. These terminal buildings cover an area of over three acres.

A wide variety of building materials is used on the B&O. These include precast floor and roof units, metal windows, large overhead doors, cellular steel decking, prefabricated buildings where appropriate, masonry construction of brick and concrete block, and steel framing with metal siding or masonry curtain walls. Usually, incombustible materials are used and for the smaller buildings, as well as the larger ones, the trend is toward the use of some material other than wood.

Keeping economy of construction and future maintenance in mind, several plans and estimates of various appropriate types are made before deciding on the one to be used. No effort is made to standardize on any particular type. However, the majority of structures built recently are constructed of concrete block, sometimes with brick facing, or of protected metal siding.

Some time ago, two structures were erected of aluminum siding with a baked-on color finish. A recent inspection showed that, after five years service, this siding was in such excellent condition it was doubted that painting would be necessary for 20 years.

Freighthouses usually are constructed with metal siding on steel framing. However, masonry is used in some localities to conform with code requirements.

Yard offices and signal and car-retarder towers are frequently built of masonry. High towers have steel framing with masonry curtain walls. Large observation windows of insulating glass are provided in towers to provide unobstructed vision for the operators and yardmasters. In general, these observation towers are air conditioned.

Now in the designing stage is a six-story car-retarder tower for a new yard at Cumberland, Md. This tower will have two observation floors, one for the operators and the other for the yardmasters. A two-man elevator will be included.

Consolidated facilities are being built at yards when appropriate. These combine yard offices with tape-to-card facilities for freight handling, locker and toilet rooms, offices and various rooms for signal and retarder equipment.

Facilities originally used for the repair of steam power have been converted for other purposes. For example, a steam locomotive repair shop at DuBois, Pa., was converted into a car-repair shop 134 ft by 524 ft. It is designed to handle cars on a production-line basis, entirely under cover, and is expected to effect considerable savings in the repair of cars. This facility may also be used to build new cars.

The B&O has an extensive program under way for removing unused buildings and structures. Although a great deal of this work was necessitated by conversion from steam to diesel power, some of it stems from more current events. These include the remodeling of passenger stations at various locations to utilize unused space for offices, as well as the consolidation of facilities for improved operations. In this connection, the trend is toward reducing the number of buildings and the sizes to suit present-day conditions, with resultant lower maintenance, fire risk and taxes.

The design of heating systems also is handled by the building forces. In this connection, two 300-hp Coal-Pak Automatic package-type boilers have recently been ordered for installation in the Riverside shops in Baltimore. Developed by Bituminous Coal Research, Inc., these boilers burn coal and are fully automatic. Their principal features include an automatic feeding system, a water-cooled vibratory grate, forced and induced draft fans, and screw-type ash-removal conveyors. Simple control systems provide the complete assembly with full automation.

GRADE SEPARATIONS are requiring an increasing number of bridges to be built because of the national highway-construction program. Currently, the B&O has 137 highway bridges and 46 railroad structures either in the planning or construction stages.

5,500 RR bridges to maintain

The bridges that carry B&O tracks represent just about every conceivable type of construction. And they include these outstanding structures:

Pioneer stone arch
Longest single-leaf bascule span
Longest vertical-lift span

● In addition to having a large number of culverts, the Baltimore & Ohio has over 115 track-miles of railroad bridges to main. These consist of 1,312 timber trestle structures and 4,203 permanent-type structures built of steel, concrete or stone. Of the 776 highway bridges over B&O tracks, the road maintains 423.

Although the road now leans toward the deck-girder type of bridge construction, this is, by no means, a fixed policy. Local conditions, such as the type of crossing, clearance conditions, the angle of crossing, etc., determine the particular design. Hence, there are all types of structures.

A few stone-arch bridges date back to the time that the road was built. One such bridge, the Carrollton viaduct, was built in 1829 and is claimed to be the oldest of its type in the world. It is a double-track stone-arch structure with a main span of 80 ft located on a heavily operated branch line in Baltimore.

All new bridges are designed in accordance with AREA specifications. Cooper's E-72 loading is used for main-line structures and Cooper's E-60 for branch-line bridges. The road has only a few timber trestles on its main lines, but many are in service on the branch lines.

There are 14 movable railroad bridges. These include one vertical lift bridge, eight single-leaf bascule bridges and five swing spans.

The road's $11 million Arthur Kill bridge, recently constructed and put in service between Staten Island, N.Y., and New Jersey, is said to be the longest railroad vertical-lift span in the world (see *RT&S*, Nov. 1959, p. 32). It has a span of 558 ft. Its minimum and maximum clearances are 31 ft and 135 ft, respectively, above mean high water.

Another bridge of note is No. 463 at Cleveland, Ohio. It is said to be the world's longest single-leaf bascule railroad bridge. Its movable span is 255 ft long.

B&O Gets set for the '60's

All new construction is handled by the assistant chief engineer-construction. Formerly, the preponderance of new construction was done under contract; however the road is now working toward doing more of this work with its own forces.

A case in point is the building of a new $1-million bridge for carrying Fort avenue over 41 of the road's tracks in Locust Point yard, Baltimore. This structure is to be 615 ft long and 48 ft wide. It will have steel girders and beams and a concrete floor.

As on most railroads, the number of highway and railroad bridges on the B&O is rapidly increasing, owing to the construction of new highways. Such projects, even if the structures involved are designed by other parties, have placed a large work load on the engineering-construction forces. They not only necessitate time to review and check all plans for structures to be built over the tracks, as well as time to design those over which trains will pass, but they also require many hours for negotiating the division of costs and for dealing with the rail-

SUSQUEHANNA RIVER bridge located near Havre-de-Grace, Md., on the Philadelphia-Baltimore line, carries two main tracks.

BRIDGE NO. 463 at Cleveland, Ohio, is said to be the world's longest single-leaf bascule railroad bridge. Span is 255 ft long.

road's interest while the structures are under construction.

Currently, there are highway projects involving 137 highway bridges and 46 railroad bridges either in the planning stage or under construction. Now under construction are 32 highway and 15 railroad bridges.

Inspection practices

All structures are regularly inspected by division inspectors who cover these structures continuously and make detail reports on each.

Each region has a district bridge inspector who is a qualified bridge inspector and who regularly reports to the engineer of bridge and building maintenance. The district inspector reinspects all structures on which repair work is indicated by the division inspectors, orders the necessary repair material and works with the division inspectors and master carpenters in seeing that the work is properly scheduled and carried out. If any problems arise pertaining to the strength of a structure, the district inspector calls for a consultation with a representative of the engineer of bridges and buildings.

At present, the B&O has three regional bridge gangs which carry out the heavy repairs to structures. Minor repairs are handled by division gangs.

Bridge surfaces of new structures are protected by oil-base paints of three different colors. The prime coat is red lead and this is followed by a brown and black coat. Repainting is by a spot coat of red lead primer followed by a coat of black bridge paint.

Self-propelled scaffold for tunnel work

At the beginning of 1959 there were 128 tunnels, totaling 23 miles in length, on the B&O. These include all types of lining construction—timber, brick and concrete with many of the natural rock.

Currently, the road has a program for daylighting certain tunnels in their entirety and portions of others, as well as making repairs to tunnels not being daylighted.

The work involved in tunnel maintenance is very specialized in that practically all the work must be done under traffic. One of the big problems is that of having a scaffold which is readily assembled and removed to clear for trains. In the past the road has used frame scaffolds mounted on push cars. But these were not large enough to provide satisfactory working space, necessitating the hanging of other scaffolding from the tunnel walls and removing it to clear for trains.

MOBILE ELEVATING SCAFFOLD transports and raises men and materials for work inside of tunnels.

To solve this problem, Athey Products, Inc., in collaboration with B&O engineers, designed a self-propelled working scaffold. Mounted on rubber-tired wheels which straddle the rails, the machine can travel in and out of tunnels at speeds up to 15 mph.

The center or fixed platform is 14 ft long and 8 ft wide and is equipped with adjustable side platforms which can be extended to a width of 5 ft, giving an overall working space of 14 ft in length and 18 ft in width.

The center platform is actuated by two hydraulic rams. In its lowered position it is 11 ft above top of tie and it can be raised 3 ft 6 in. The side platforms are actuated by cables. Constructed in three sections, they may be used in single, double or triple widths and at any height desired.

MORRISON PLAN Leasing and B&O Mechanization Go Hand in Hand

$3,500,000 of Leased Equipment Enables B&O To Do A Better M/W Job -- and Save Money

MORRISON PLAN is but one of many firms now engaged in the leasing business—but we are pioneers and specialists in the field of M/W equipment leasing that enables railroads to do a complete job of converting to mechanized maintenance. For many years we have, with railroad cooperation, been studying, researching, and developing the best means of furnishing the equipment needed for this conversion. Confidence in our ability, gained from experience, was the background that led to our selection by B&O as the source of supply in their multi-million dollar acquisition of machines and equipment needed to modernize maintenance practices throughout their entire system. The advantages of MORRISON PLAN LEASING for B&O were:

1. The road made no capital investment, thereby conserving capital resources for other uses.
2. All the materiel — all the various types of equipment from a score of manufacturers and suppliers — was furnished to B&O in one lease package. We did the purchasing, to their specifications, delivered the equipment to them on an attractive rental basis.
3. Upon the expiration of the original lease, renewal for lease of all, or part, of the equipment is available at a fraction of the original terms.

Leasing today is recognized as a modern way to acquire rolling stock and equipment. Its advantages are many and its benefits are manifold. The question to be considered by the railroad is not *"shall we lease"* but rather *"how can we profit with a* MORRISON PLAN lease?"

We will be pleased to discuss the matter with you — in confidence, without obligation.

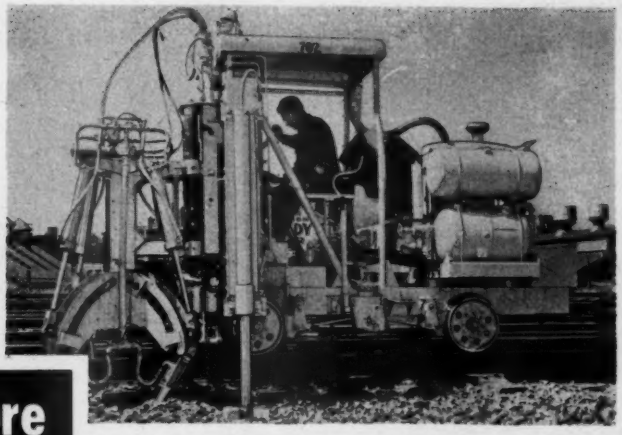
MORRISON PLAN LEASES are currently in effect on 12 Class 1 railroads - for

- FREIGHT CARS
- MAINTENANCE-OF WAY EQUIPMENT
- MOTOR TRUCKS
- MOBILE HOUSING UNITS

MORRISON PLAN, Inc.

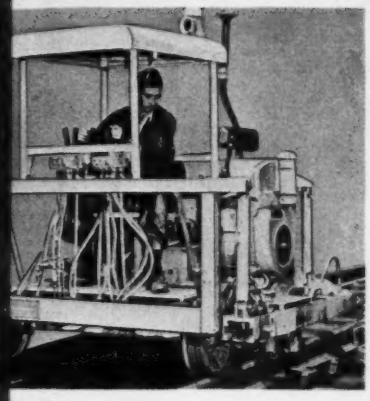
814 Rand Building — Buffalo 3, N. Y.

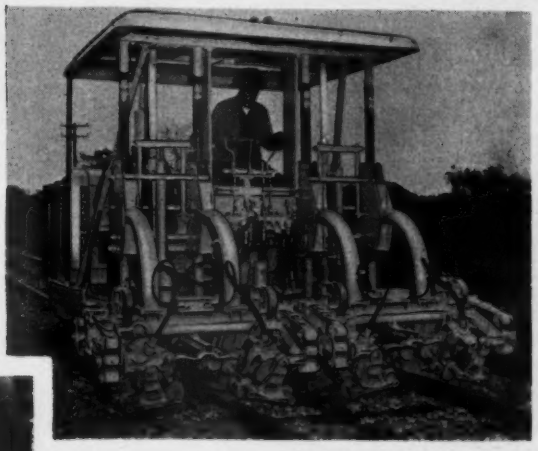
A Subsidiary of Ryder System, Inc.

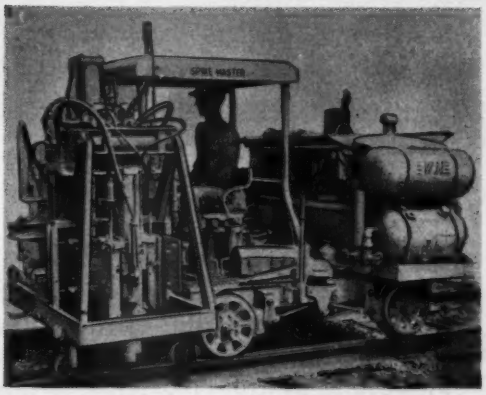


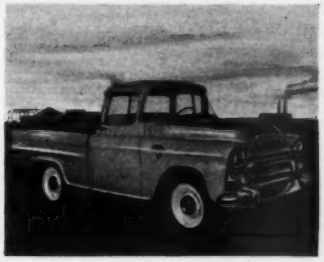
All This Equipment And More In Just ONE Lease Package!

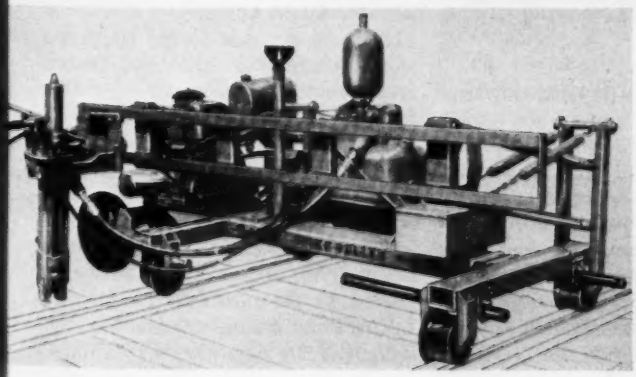
with the *MORRISON PLAN*











LOCUST POINT port installations at Baltimore are said to be the world's largest privately operated marine terminal. This view shows the facilities on north side of Point. It includes seven covered general-cargo and two open piers, and a large yard.

Port facilities are big factor

From its inception the B&O has been building up its facilities at ocean and lake ports for handling traffic to and from water-borne carriers. In addition to three major eastern seaboard ports at Baltimore, Philadelphia and New York, it has developed extensive port facilities on the Great Lakes.

● The B&O carries a large amount of import and export traffic. For handling this type of business it has invested heavily in several large port facilities.

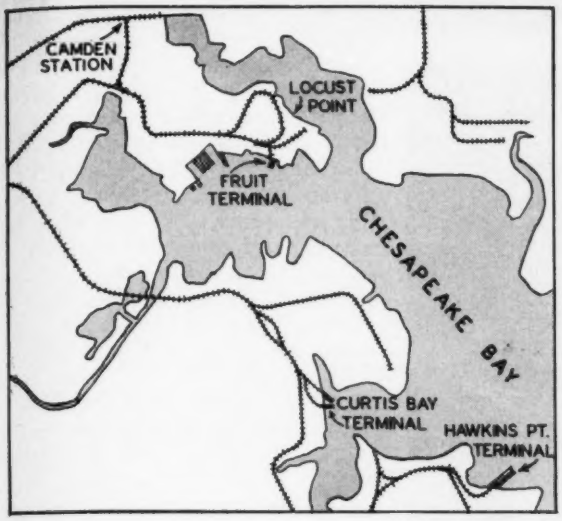
At Baltimore

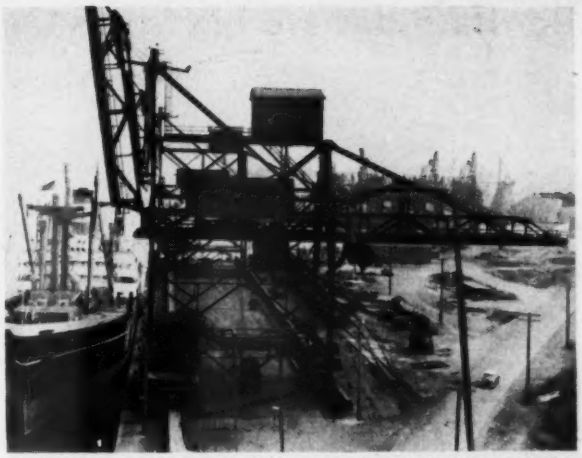
The greatest investment in port facilities is at Baltimore. There the B&O has three large marine terminals—Locust Point, Curtis Bay and Hawkins Point.

Locust Point—Port installations at Locust Point are said to be the world's largest privately operated railroad marine terminal. On the north side of the Point are seven covered general-cargo piers, two open piers, one with two 10-ton electrically operated traveling cranes, and a terminal yard with a capacity of 2,700 cars. Two of the general cargo piers are equipped with overhead grain-loading galleries. One of these has grain-bagging equipment on its upper deck with a capacity of 12,000 bushels in an eight-hour day. The bagged grain can be moved on a conveyor belt to chutes for direct delivery to the vessels.

A grain elevator on the site has a storage capacity of 3,500,000 bushels and a working capacity of 3,200,000 bushels. Cars are lifted and their contents are dumped into unloading hoppers. Over 100 cars can be unloaded in a single day.

Float bridges are available for transferring railroad cars from shore to car floats, and vice versa. Also included in the northerly facilities at Locust Point marine terminal is a 350-ft coal pier. This is used for the trans-





THE B&O has extensive facilities at the Port of Baltimore (left). Among them is the ore pier shown above which was built on Curtis Bay. It is 650 ft long and has two unloading machines.

NEWEST facility on Locust Point is the fruit terminal which will accommodate 63 refrigerator cars within the shed on the pier.

fer of coal from hopper cars to barges for delivery to waterfront industries.

The newest railroad facility at this terminal is a fruit pier which is located on the southerly side of the terminal. It is a joint venture with the United Fruit Company for servicing its fleet of vessels and was built at a cost of $5.5 million. It is characterized by the fruit company as "the world's largest and most modern banana-discharging terminal."

Curtis Bay—This terminal is used primarily for handling bulk commodities such as metallic ores, coal and chemical products. It includes one of the most modern ore-unloading piers on tidewater and also the port's largest coal-loading pier.

The coal pier at Curtis Bay has a capacity of 38,000 tons per 8-hr day. It is equipped at its land end with two turnover car dumpers, each having a capacity of 40 cars an hour. The pier is equipped with four traveling loading towers fed from belt conveyors. Two vessels can be loaded simultaneously and adjacent supporting yards will accommodate approximately 5,000 cars.

The modern ore pier, built in 1951, is in proximity to the coal pier and its supporting yards. This arrangement assures an adequate supply of empty cars for loading and quick assembling into solid ore trains.

The ore pier, 650 ft long, has two unloading machines, each with a capacity of 1,500 tons of ore per hour. The ore is lifted from vessels by the buckets of unloading machines and is passed into a receiving hopper where it drops onto a 48-in belt conveyor to be carried to car-loading hoppers.

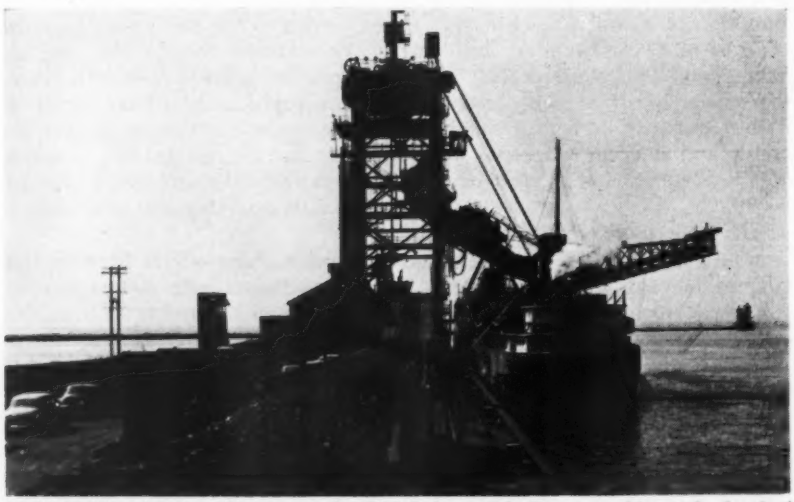
Three major foreign iron ore developments under way in Venezuela, Liberia and Labrador have increased the importance of this ore pier for the reason that the rail distance to major steel-manufacturing centers is shorter from Baltimore than any other eastern port.

Hawkins Point—Built in 1959, this marine terminal is the newest port development in Baltimore. It is a joint project with the Maryland Port Authority and was constructed at a cost of about $4 million to serve the Marley Neck industrial area. It consists of an open-deck cargo pier, 720 ft long by 90 ft wide, and provides mooring space for two vessels. At present, one of the principal cargoes handled

Port facilities are big factor cont'd

CHELSEA freight station is at the foot of 23rd Street in lower Manhattan. It is a covered pier for handling freight delivered by car floats. Roof serves as a parking area.

HAWKINS POINT is the latest B&O port development in Baltimore. Built in 1959, it consists of an open-deck cargo pier for serving the industries in the Marley Neck area.



COAL PIERS at Lorain, Ohio, are each 1,100 ft long and allow two ships to be berthed at each. One pier has a coal dumper which will handle one 70-ton car per minute.

at this pier is blister copper from Chile.

At Philadelphia the B&O marine terminal at Pier 78-South is equipped to berth large, modern vessels and is adaptable to handling all types of cargo. The pier is 867 ft long and 125 ft wide, with a water depth of 35 ft. It is served by an apron track having a capacity of 18 cars and also by a depressed shed track having a capacity of 10 cars. Pier storage and ground storage space is available for the accommodation of both export and import traffic.

At Piers 96, 98 and 100-South, accommodations are available for berthing 10 ships at one time. Two triple-deck concrete piers, providing over one million square feet of covered storage, are served by four tracks for their entire length.

At New York harbor

Because New York City possesses one of the best natural deep-water harbors in the world, it has about 200 piers. These necessitate the transfer of railroad cars, as well as freight, from one pier to another and requires a lighterage system of barges, car floats and tug boats for effecting interchange. Some lighters are open, others are covered and some are refrigerated so that all types of lading can be handled.

The B&O has four major lighterage installations at the Port of New York. One is in New Jersey, in conjunction with the Central Railroad of New Jersey. Another, the St. George lighterage, is on Staten Island, N. Y., and Pier 63 and the 26th St. Terminal are on Manhattan Island.

Jersey City—The lighterage facility at this point is comprised of wide slips and deep bulkheads which provide ample berthage for lighters, barges and car floats. Shore facilities also include large holding yards, team tracks, open and covered lighterage piers and float bridges.

St. George—This lighterage installation is located at the northern tip of Staten Island. It includes open and covered piers, float bridges, team tracks and holding yards. South of B&O's St. George lighterage is a large number of piers which are part of New York Harbor's modern pier installations on Staten Island. These are in Foreign Trade Zone No. 1 and are all served by the B&O.

Pier 63—Known as the Chelsea

Comparative abrasion-resistance was tested by a large Eastern road on this 7-deg-51 min curve. Heat-treated rails on the high side showed less than half as much wear as the standard control-cooled rails after 7 years of heavy service.

Here is a difficult 8-deg-30 min curve winding through Pennsylvania's Pocono Mountains at a 1.6 pct grade. Untreated rails lasted barely five years, while heat-treated rails laid at the same time look good for several more years.

This 4-7-12 degree compound curve in the Pocahontas coal fields was laid over five years ago, with heat-treated rails. These heat-treated rails have outlasted standard CC rails by as much as 6½ times, and are still going strong!

In northern Minnesota, two 4-degree curves were selected for comparative testing of heat-treated and untreated rails. After nine years, heat-treated rails have already outperformed untreated rails by more than 2 to 1.

How these 4 roads saved with Bethlehem fully heat-treated rails

These four case histories—typical, not exceptional—give you a pretty good idea of what to expect when you install Bethlehem heat-treated rails at points of heavy service.

Bethlehem engineers will help you select a good test location for the comparison of treated versus untreated rails in actual service. Meanwhile, if you'd like additional proof of the value of heat-treated rails, our Booklet 525 will prove eye-opening. Ask for it through our nearest district office, or write to our headquarters at the address below.

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PORT FACILITY at Toledo, Ohio, is joint with the NYC. It includes three piers, two for transshipping coal and the other for ore.

Port facilities are big factor cont'd

Freight station, Pier 63 is the newest B&O dock facility in New York. It is located in lower Manhattan at the foot of 23rd Street and serves car floats. The covered pier was designed by the railroad and constructed under contract. It is now operated by the B&O under lease from the City of New York. The roof of the pier, reached by a ramp which is heated in winter, serves as an automobile parking area with a capacity of 130 cars. The 26th Street Terminal is just north of the Chelsea Freight Station and includes railroad yard, team tracks, lighterage pier and float bridges.

On the Great Lakes

The B&O serves ports on three of the Great Lakes. These are Charlotte, N. Y., on Lake Ontario; Buffalo, N. Y., Fairport, Ohio, Cleveland, Lorain, Sandusky and Toledo on Lake Erie; and Chicago on Lake Michigan. Although the railroad does not have its own piers at all these locations, it does handle freight to and from lake vessels at these points. Four cities where it does have dock facilities are Toledo, Lorain, Fairport and Charlotte (Rochester).

Toledo—On Maumee Bay, Toledo, the B&O has, with the NYC, a port facility representing an investment of $18.5 million. It includes three piers, two of which are for transshipping coal and the other for ore.

Coal, from mines in Ohio, Virginia, West Virginia, Kentucky and Tennessee, is delivered in hopper cars and is transshipped at Toledo to lake boats for movement to Canadian and U. S. lake ports. One of the two coal piers has two car-dumping machines and can simultaneously load a ship on each side. The three car dumpers at this terminal can each unload at the rate of a car a minute.

Iron ore, from Minnesota and Labrador ranges, is removed from lake vessels at Toledo for shipment by rail to inland steel plants. The ore pier has four unloaders having a combined capacity of 2500 tons per hour.

The receiving railroad yard, with 56 miles of tracks, has a capacity of 5,400 cars. Nine smaller yards serve the individual docks. The two facilities—coal and ore—provide a balanced use of cars and minimizes empty car movements.

Lorain—Built at a cost of $4 million, B&O's coal dock at Lorain is comprised of two piers, one of which has a car dumper. Each pier is 1,100 ft long and 250 ft wide at the shore end and 80 ft wide at the lake end. Although only one ship can be loaded at a time, four ships can be berthed at the two piers. The dumping tower will handle one 70-ton car per minute.

The east side of one of these piers is equipped with 3 ore unloaders with a combined capacity of 1000 tons per hour and ground storage is available for stock piling approximately one million tons of ore.

There are two supporting yards. The loaded-car yard, with four tracks, will store 226 cars and the empty-car yard, with five tracks, has a capacity of 223 cars.

Fairport—A timber pier approximately 900 ft long is equipped with a lift and turnover type dumper for loading coal into lake vessels. The machine has a capacity of 1500 tons per hour and the dock has supporting yards for 500 cars.

Charlotte (Rochester)—A single-track steel trestle equipped with car shakeouts discharges coal from hopper cars into ships through track hoppers and chutes. The plant has a capacity of about 500 tons per hour and has adequate supporting tracks for loaded and empty cars.

Has system shop for . . .

Extending life of M/W equipment

Gets set for the '60's

Roadway machines are kept in top condition by field mechanics and a system M/W shop. The shop forces also build new frogs, manufacture switch materials and roadway signs make repairs to other track materials and scales and handle the necessary fabrication of bridge steel.

SIGN SHOP uses aluminum and Scotchlite in the manufacture of most roadway signs.

● With its track forces reorganized and mechanized, the B&O knows that production is now dependent upon the proper performance of its work equipment. To assure machine reliability, it maintains a large M/W equipment system shop at Martinsburg, W. Va., and has set up a field maintenance force of mechanics.

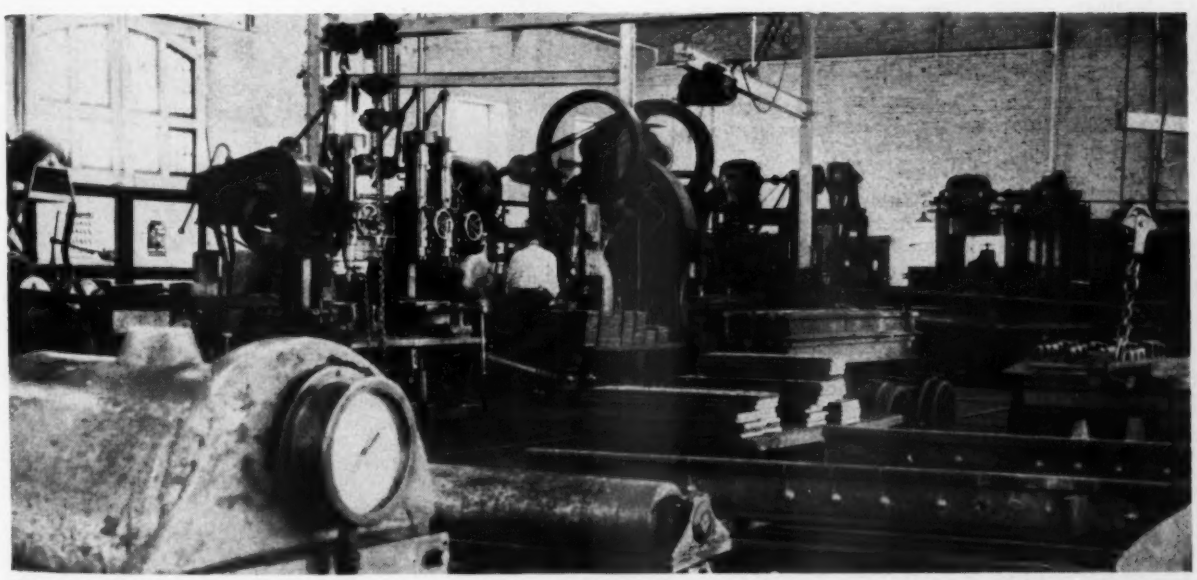
The field force is comprised of 31 field mechanics, called motor-car repairmen, who continually check all machines under their jurisdiction. They work under division assignments, being assisted by equipment inspectors and shop personnel as needed. The equipment inspectors and equipment shop are under the jurisdiction of the engineer maintenance equipment.

Each motor-car repairman is furnished with a compartmentized 1-ton dual-wheel truck which is equipped with spare parts and tools necessary to make field repairs. Plans are also under way to furnish each of these trucks with an air compressor, small generator and power-operated tools.

Field mechanics also maintain the large fleet of trucks assigned to the field maintenance forces. However, if major repairs are required, the truck may be repaired at a local reliable garage.

Under the road's policy, all tamping machines and most of the Ballast Regulators are shopped once each year. Other machines are repaired as required in the field unless the work is too extensive. In this event they are recommended to be shopped after being checked in the field by the equipment inspector.

The motor-car repairmen maintain a supply of those parts most subject to failure. These are ordered through the purchasing department by a series of blanket orders. However, in the case of emergency breakdowns, small parts can be obtained locally by the



FROG-AND-SWITCH SHOP at Martinsburg, W. Va., is fully equipped to build and repair a large part of the turnout material required.

repairman after first obtaining an order number to cover the purchase from the stores department.

System M/W shop

B&O's system shop at Martinsburg is equipped to overhaul and make major repairs to any roadway machine. Shop equipment includes machines for grinding crank shafts and for boring engine blocks. It also includes instruments and machines for testing and repairing hydraulic pumps, motors, relief valves, control valves, magnetos, generators, starters, ignition systems and carburetors. A dynamometer is also available for testing engine horsepower up to 300 hp. The shop has cranes and other equipment for repairing and rebuilding the frames of all M/W machines. It also converts steam cranes to diesel power.

The equipment-repair shop is just one of the several units comprising this system M/W shop. Also at this location are a frog-and-switch shop, a roadway sign shop, a carpenter shop, a bridge shop, a scale shop, a reclamation and outside-storage area. The force manning the system shop averages about 100 men working under a shop superintendent.

Frog-and-switch shop—The B&O builds and repairs a large part of the turnout material required for both its new and relay-rail programs. The shop where this work is done is equipped with planers, milling machines, drill presses, shears, punches, jib cranes, riveters, nut runners, and other machines and shop power tools for metal shaping and fabrication.

All switches, complete with plates, bars, blocks and fittings, are made in this shop for replacements as well as for the new and relay-rail programs. Many parts, such as foot guards, stops and clips, are reclaimed from worn-out switches and are reused as needed. Open-hearth crossing frogs may be built new in this shop.

New spring-rail frogs are built here and used ones are repaired. The manganese-insert-type frogs and the solid manganese self-guarded frogs are purchased and welding repairs are made to them in the field. The shop rehabilitates both these types of frogs after they are removed from track in relay programs and sends them out for service in repair-rail territory.

Other items reclaimed and repaired at this point include switch stands and lamps, and track tools and materials such as track jacks, bonding drills, bolts, spikes, anchors and insulated joints.

Sign shop—Every type of roadway sign used by the railroad is made at the sign shop. Aluminum and Scotchlite are used in the manufacture of most signs. The road has made silk screens for the most commonly used signs. A spray booth is available for certain special sign work.

Carpenter shop—All general wood working is done in a well-equipped carpenter shop. Crating materials and repairs to baggage, warehouse and push trucks are made in this shop.

Bridge shop—Manned by trained boilermakers and other craftsmen, the bridge shop at Martinsburg handles any job requiring the fabrication of heavy-gage metal and structural shapes. Dismantled turntables, steel bridges and other steel structures are sent to this point where the members are repaired for further use or are altered into other needed structures.

Masts and brackets for signals, crane booms, safety handrails, metal ladders, etc., are a few examples of other items made in this shop. Clamshell buckets and the tracks for crawler equipment are also repaired here.

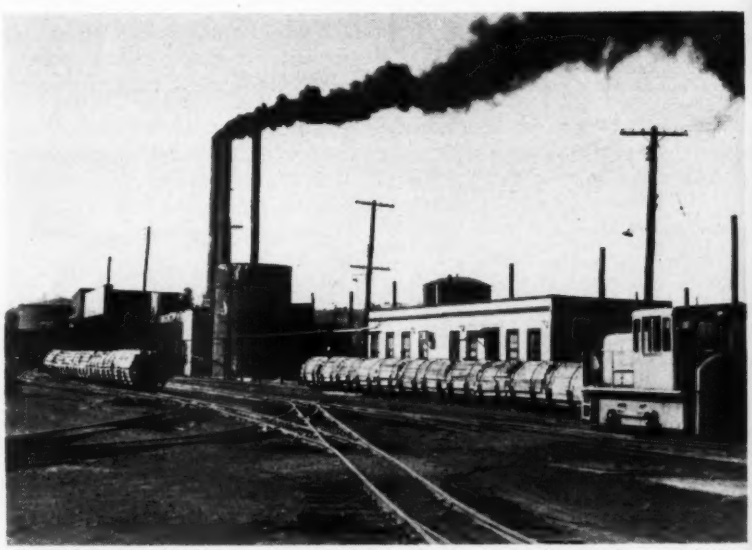
How timber is treated and preframed

Practically all crossties, switch ties, bridge ties and other structural timber used on bridges, buildings and docks on the B&O are pressure-treated. This treatment is given at two locations, Finney, Ohio, and Green Spring, W. Va.

While the actual operation of these plants is handled by an outside concern, the work is performed under the railroad's supervision. Crossties are treated at both plants but the other timber is treated only at Green Spring where the road has a preframing shop and wood-working mill.

Under normal conditions, the B&O uses for all purposes approximately 1 million crossties, 4 million fbm of switch ties and 6 million fbm of other treated structural timber annually. Generally, ties and heavy timbers are seasoned for 12 months, while lumber is seasoned from 4 to 12 months.

Preliminary to treatment, bridge timbers, car decking, crossing planks and other miscellaneous lumber are preframed. The preframing shop is completely equipped with the necessary machines for performing this work, including a multiple-boring unit on which all bridge ties are prebored to facilitate treatment. All switch ties are doweled prior to treatment and crossties are doweled on a selective basis.



WOOD PRESERVATION plant at Green Spring, W. Va., treats ties, lumber and bridge timbers. The wood is shaped in a wood-working and preframing shop before treatment. Another treating plant is at Finney, Ohio.

Diesel Shop for the Reading Line

...it's another ARMCO STEEL BUILDING

The Reading Company is able to service 24 diesel units a day in its Armco Steel Building at Newberry Junction, Williamsport, Pennsylvania. This diesel repair shop has one through track with a pit, and elevated platforms with a lube oil station on one side.

Because of Armco's quality and fast, economical erection service, an Armco Building was chosen to replace another building destroyed by fire. Factory-produced STEELOX® panels interlock quickly and easily. Buildings go up in a hurry. And there's little danger of fire—Armco Buildings are noncombustible.

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CENTRALIZED TRAFFIC CONTROL installations necessitated the relocation of many signals and the removal of long stretches of second main track.

CTC permits the best portions of each main track to be saved by severing and connecting them. Remaining track is removed or left as passing track.

Signal forces in full stride

● The design circuits and systems, interlocking plants and crossing protection is handled on the B&O by the office of the signal engineer, who reports directly to the operating vice-president. However, the maintenance and construction of signals and interlockings comes under the jurisdiction of Mr. Jackman, assistant chief engineer-maintenance. On each division a signal supervisor is responsible for these facilities, and the work is carried out by signal maintainers and their helpers under his supervision.

New construction, such as the installation of CTC, is designed by the signal engineer's forces but the actual work of installation is the responsibility of the maintenance forces. However, such work is an extra load and usually requires the assistance of construction gangs. These gangs work under the direction of an assistant engineer on Mr. Jackman's staff.

Current CTC projects

The signal forces have recently carried out, or have under way a number of important undertakings, including several CTC projects.

At the beginning of 1959, the B&O had 301 miles of track operated under centralized traffic control. Machines for the control of train operation on this mileage are placed at six locations, i.e., Grafton, W. Va., Washington, Pa., Fairpoint, Ohio, Dayton, Ohio, Washington, Ind., and Deshler, Ohio.

B&O Gets set for the '60's

CTC or related projects under way in 1959, or for which plans have been projected, encompass five more projects:

Halethorpe, Md., to Point of Rocks—This project covers 59 miles of track with the control machine located in Baltimore. It will entail the removal of 44 miles of second main track, and also will include the remote control of the interlocking plant at Weverton, Md., from Brunswick, Md. This project is expected to be completed February 1, 1960.

Bay View, Md., to Darby, Pa.—This project covers 85 miles of track and the control machine is also located in Baltimore. It will include the installation of a new interlocking tower at East Side, Philadelphia, which will also be used for the remote control of the existing interlockings at Vine street, Locust street, Schuylkill river drawbridge, East Wick and 58th street, all in Philadelphia.

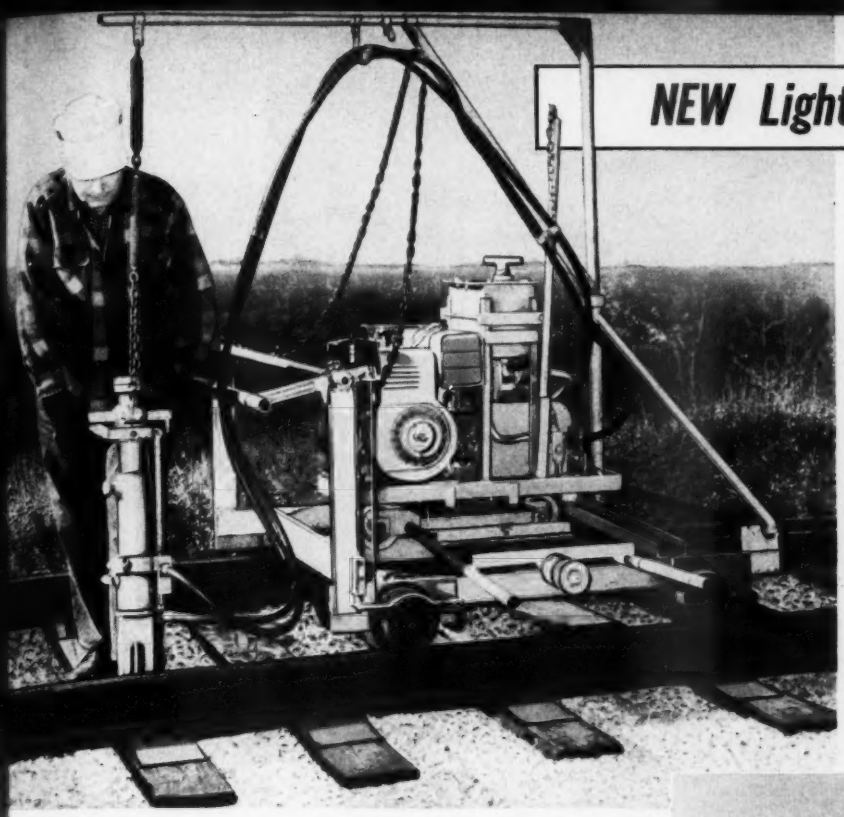
New River Junction, Ohio, to Dayton—This installation covers a distance of 27 miles and the control machine will be at Dayton. Almost 20 miles of track will be removed in conjunction with this work.

Glenwood Junction, Pa., to Gilkeson—This section is 19.5 miles long and the new machine will be installed in the dispatcher's office in Pittsburgh. The machine will also control train operation over a previous installation of CTC between Gilkeson and Wheeling, W. Va., and will eliminate the existing control panel.

New tower at Parkersburg, W. Va.—Purpose of this installation is to control the switches in the vicinity of the tower as well as at Belpre, Ohio, which is across the Ohio river from Parkersburg.

Other work which requires the attention of the signal forces is the modernization of interlocking plants. In the last 10 years the road has changed 30 mechanical plants to electric interlocking, which are now remote controlled from other interlockings.

From 1923 to 1958, inclusive, the B&O has installed automatic protection at 1,386 highway crossings. Of these, 175 installations included automatic short-arm gates. This work was further progressed in 1959 by the installation of 10 automatic flashing-light signals and short-arm gates and 15 crossings with automatic flashing-light signals.



NEW Lightweight Carriage

speeds operation of NORDBERG Hydraulic SPIKE PULLER

Ready for spike pulling operations, the Nordberg Hydraulic Spike Puller and Carriage is compact, easy to operate. Note arm and chain support for the gun, and the push bar which also acts as a brake release.

• Adding to the versatility of the Nordberg Hydraulic Spike Puller, a new lightweight, aluminum frame carriage has been developed to further improve spike pulling operations on tie renewal jobs. Featuring high speed pulling and less operator fatigue, this new unit may be used with any new or existing Nordberg Hydraulic Spike Puller.

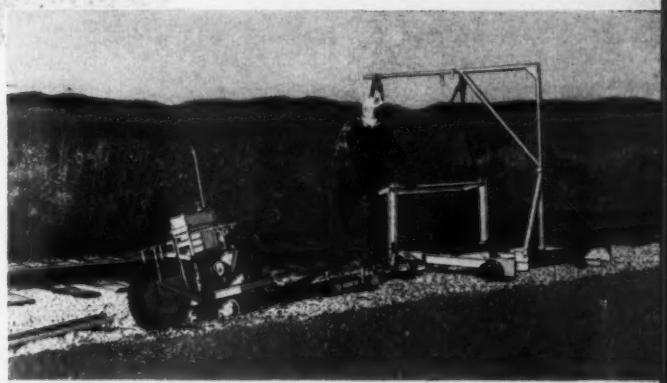
Actual tests show that the new carriage greatly increases high production spike removal. In one such test, 360 spikes, 4 spikes to a tie, were easily pulled by one man in 30 minutes . . . *that's 720 spikes per hour, or one every five seconds.*

In pulling spikes, the operator swings the pulling gun into position, fits the claw over the spike head, presses the trigger, and pulls the spike . . . which is automatically ejected as the claw returns to pulling position.

This versatile Nordberg Hydraulic Spike Puller and Carriage is a time and money-saving investment on many jobs. It can be used with equal effectiveness in yards, terminals, on bridges, and on all-around rail renewal work.

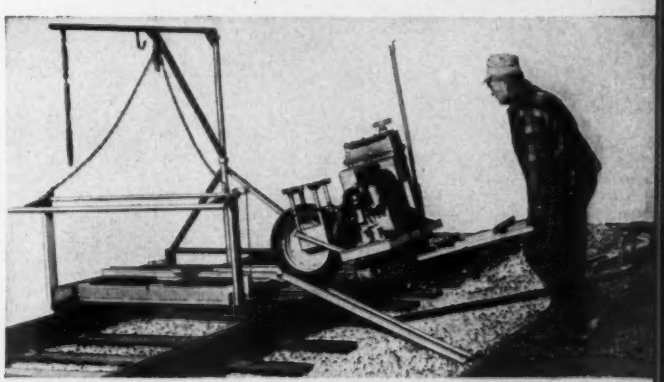
Write for complete information.

NORDBERG MFG. CO.
Milwaukee 1, Wisconsin



Preparing for spike pulling operations, the operator easily lifts the aluminum-framed Spike Puller Carriage onto the track.

With the Carriage on the track, the Spike Puller is easily rolled up the aluminum set-off ramp into position on the Carriage.



NORDBERG *Mechanical Muscles*®

Write for LEASING Plans

© 1959, N. M. Co.

R259

BATTER and

Heavy-duty OXWELD MW rod builds up battered rail ends...

The metal in an OXWELD MW steel rod will stand up to more battering than the rail on which you use it. Designed specifically for heavy-traffic rail steel, MW rod produces a hard, abrasion-resistant surface of high tensile strength . . . builds up battered rail ends in the Maintenance-of-Way department. Since it responds to heat treatment, MW rod is also valuable for repairing parts that must be flame-hardened.

"Hard-as-rails" OXWELD DRIBURN rod builds up driver burns, frogs, and switch points...

Because this metal is formulated for the same hardness as rail steel, it wears at the same rate. This eliminates the problem of secondary batter. Check driver burns before they can cause trouble. One major road used DRIBURN rod for almost 25,000 welds in 1958 without a single failure reported. Since DRIBURN rod is engineered for the most desirable flow qualities, welding can proceed quickly. You save on both labor and gases, the two most costly items in this operation.

USE THE W-24-R BLOWPIPE FOR BOTH

This is a general-duty blowpipe for sale only to railroads. Twelve different sizes of welding head are available, ranging from 4 cu. ft. to 80 cu. ft., and heating heads come in five sizes from 100 to 250 cu. ft. All use low-pressure acetylene.

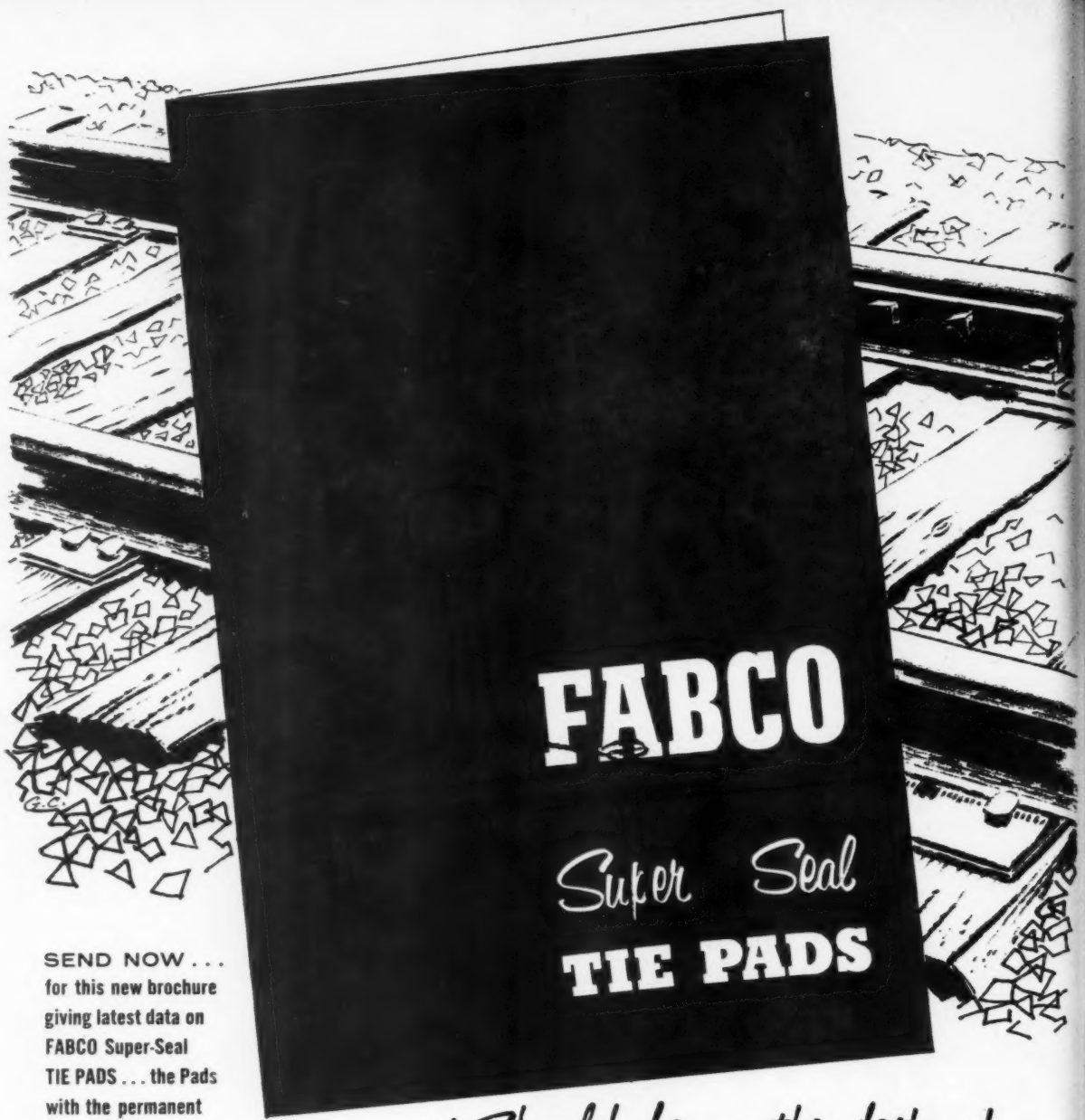
For detailed information on rods and blowpipes, talk to your LINDE representative, or write Oxweld Railroad Department, Linde Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y. *In Canada:* Linde Company, Division of Union Carbide Canada Limited, Toronto.

OXWELD RAILROAD DEPARTMENT

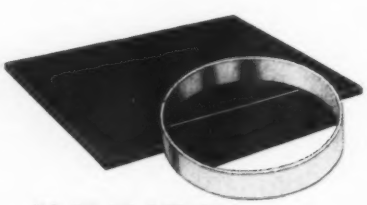
Linde

UNION CARBIDE

"Linde," "Oxweld," "MW," "Driburn," and "Union Carbide" are registered trade marks of Union Carbide Corporation.



SEND NOW . . .
for this new brochure giving latest data on FABCO Super-Seal TIE PADS . . . the Pads with the permanent Super Seal.



U.S. PAT. NO. 2,770,421

FABCO Super-Seal TIE PAD — showing the double-thick asphalt Super-Seal, plus the newly developed master binder which makes the asphalt Super-Seal an integral part of the pad.

"Should be on the desk of every railroad man responsible for economical M/W operations!"

FABCO TIE PADS have passed all practical tests of time and tough service on bridges, curves, switches, station and station approach track, as well as in open track and in other areas where the mechanical wear of ties by the tie plates is excessive or severe.

FABREEKA PRODUCTS CO., Inc.
1190 ADAMS STREET, BOSTON 24, MASS.

NEW YORK • DETROIT • SKOKIE, ILL. • MILWAUKEE • PHILADELPHIA • PITTSBURGH • CINCINNATI • LONG BEACH • OAKLAND • PORTLAND, OR.
CANADIAN REPRESENTATIVE: INTERNATIONAL EQUIPMENT CO., LTD., MONTREAL

New classification yard goes into service

West crest of Missouri Pacific's new electronic double-crest classification yard at Kansas City, Mo. Known officially as Neff Yard, this facility was completed in November 1959 at a cost of well over $13 million. It is designed to handle from 2,600 to 3,600 cars daily. Cars are shoved up a 3-per cent hump grade, past dragging-equipment detectors and inspection pits to the crest. They descend on a 4.8-per cent grade through the master retarder, then 0.8 per cent at the group retarders. RIGHT—Console which controls car movements on west crest.

News briefs in pictures . . .

Snow-fighting the modern way

Powerful exhaust from the engine of a B-36 jet bomber is used by the New York Central to produce a snow blower (left) which, it is said, can blast freight-yard tracks completely free of snow for a distance of 100 ft. Fuel experts have avoided the problem of buying costly jet airplane fuel to run the blower by modifying the engine to burn ordinary diesel oil. NYC's research center predicts that the new blower, now in full winter operation, will speed up tremendously the clearing of snow-blocked yards and will reduce by "many thousands of dollars" the Central's annual snow-fighting bill. Direction of the blast is controlled by a huge nozzle constructed at the tail of the jet engine. Controlled hydraulically from a modified caboose, the nozzle can be swung through a 60-deg arc from side to side and can be depressed to 15 deg below the horizontal.

Products

Permits rail movements . . .

Sliding joint

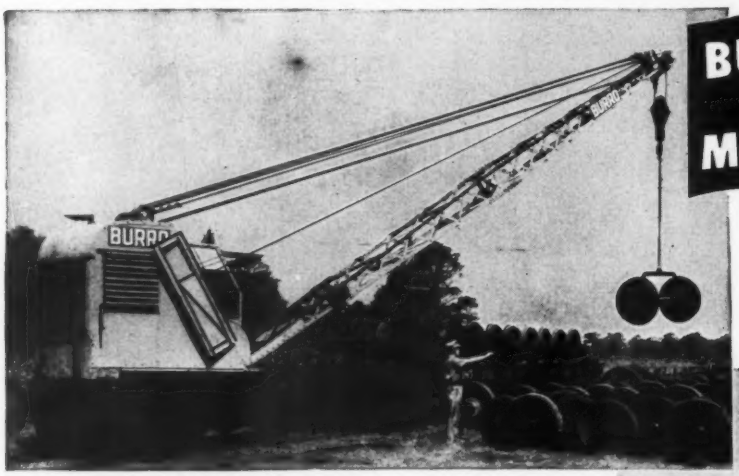
DESIGNED for use in welded track, on curves and on approaches to bridges and trestles, Conley sliding joints are claimed to reduce stresses in rail and structures and prevent rail buckling or separation at joints. Weighing about 2400 lb each, the joint includes two main members—a fixed casting and a sliding wing rail. The casting is constructed in conformance with AREA Specifications App. A-51, Section 403, and is held in place on the ties by standard fasteners. The wing rail consists of standard AREA rail that slides within the casting as the rail expands or contracts. The joint shown in the picture provides a normal movement of the sliding rail of 24 in, 12 in each way from neutral point. The manufacturer states that construction of the joints can be varied to meet specific track conditions.

The joint is available constructed of open-hearth materials throughout or with a manganese casting and open-hearth wing rail. Heat treatment of the wing rail is optional. *Conley Frog & Switch Co., Dept. RTS, 362 Bodley Ave., Memphis 9, Tenn.*

New transmission for . . .

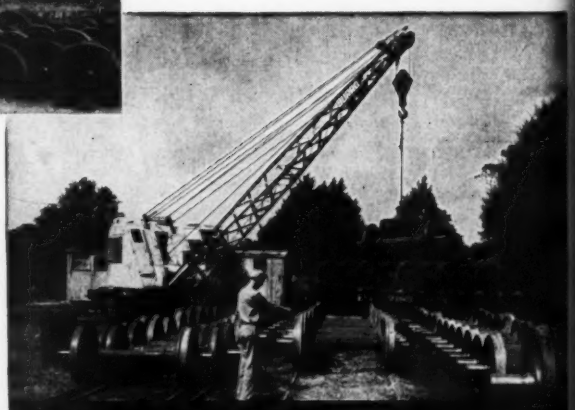
Tournapull

A NEW torque converter transmission is available for installation on the L-W Model D Tournapull. Replacing the conventional manual-shift-type transmission, which is also available, the new transmission consists of a single-stage, multiple-phase, four-element torque converter combined with a heavy-duty, power-shift gear box. The new transmission provides four speeds forward and two speeds in reverse. The unit is stated to travel at speeds up to 30 mph. Machines having the torque converter are equipped with an automatic lock-up clutch which is claimed to provide maximum operating efficiency and economy. It is



BURRO WORK POWER
means . . .
MORE EARNING POWER

Unloading car wheels with a Burro. The Burro moved the flat car into position and will haul it away when wheels are unloaded.



This job—handling wheel assemblies in and out of storage—won't support high costs. That's why a Burro is doing the job.

***Any* job—on the line, in the yards, or Stores Department—can be done profitably with a Burro because Burros are fast, efficient workers with hook, magnet, tongs, bucket or dragline. Fast travel speeds and heavy draw bar pull enable the Burro to go to the job in a hurry—and even haul its own cars with it!**

Write for Bulletins and more information about Burro cranes. There is no obligation.

Represented In Canada by:
Sylvester Steel Products Co., Ltd., Lindsay, Ontario

CULLEN-FRIESTEDT CO.,
1301 S. KILBOURN AVE. CHICAGO, ILLINOIS

"There is hardly anything in the world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are that man's lawful prey."

JOHN RUSKIN

BIRD
& SON, inc.
Established 1795
East Walpole, Mass.

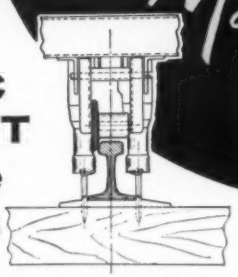
And Bird Tie Pads are competitively priced.

In-track experience proves . . .
BIRD TIE PADS
save up to $1000.00 per mile per year

SPEED:
Up to 8 Ties per minute!

RMC
SPIKE Master

Now . . . with
AUTOMATIC ADJUSTMENT
for track gauge variations



More effective now than ever—SpikeMaster is equipped with a Swinging Gun Mount which automatically adjusts for variations in rail gauge. Air cylinders keep flanged pilot wheels tight to the rail gauge, enabling swinging head to position guns positively over spikes—regardless of curvature or gauge inequalities.

SpikeMaster nips up the tie and drives four spikes—one on either side of both rails.

Write for New Bulletin SM-200

Railway Maintenance Corporation

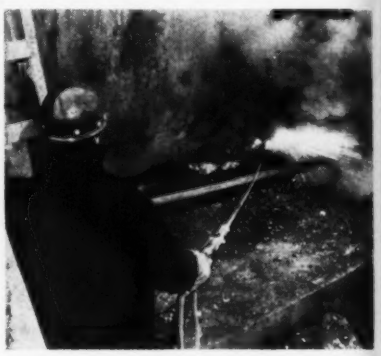
PITTSBURGH 30, PA.

Products (cont'd)

claimed that the new clutch eliminates slippage in the converter at haul speed.

Advantages attributed to the new torque converter transmission include automatic adjustment of power output for maximum efficiency and production speed regardless of load or terrain. The new transmission is stated to be less complicated in operation and to provide a cushioning effect to shock loads. The manufacturer claims that the latter is expected to help cut maintenance costs by saving wear and tear of the machine's other components.

Other improvements made to the Tournapull include a dry-type air cleaner, and an enlarged rectifier housing. The latter has been relocated to a position adjacent to the radiator to provide better engine accessability and improved cooling to the rectifier. *LeTourneau-Westinghouse Company, Dept. RTS, Peoria, Ill.*

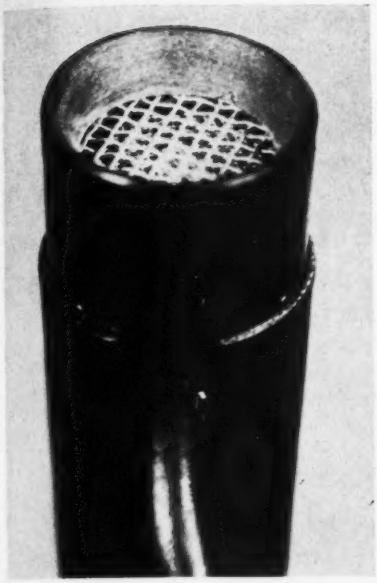


For cutting concrete . . .

Powder lance

CONCRETE, metal or any other known hard material of any thickness can be cut, it is claimed, by the Oxweld ACL-4 Powder lance. The manufacturer states that the new lance can be used on construction and demolition jobs for making vertical or horizontal cuts in concrete without noise or vibration through the accurate control of intense heat. It is claimed that on a recent demolition job the lance cut a hole in a concrete wall 18 in thick in 2 min 30 sec.

The ACL-4 utilizes a quick-release chuck-type pipe holder into which a length of unthreaded standard black iron pipe or tubing is inserted. The opposite end of the pipe holder is connected to an oxygen supply and a source of special metallic powder. The oxygen and powder are mixed in the pipe and carried to the material being pierced or cut. The mixture is ignited at the end of the pipe and is stated to produce a temperature estimated at approximately 8000 deg F. The pipe is consumed in the cutting process. For cutting concrete, a special mixture, Oxweld 201 lancing powder, is used. It consists of iron and aluminum powder, the latter being added to intensify the cutting reaction. The average consumption rate of consumable materials per square foot of concrete is said to be 1000 cu ft of oxygen, 40 lb of lancing powder and 10 ft of pipe. *Linde Company, Dept. RTS, 420 Lexington Ave., New York 17.*



Designed for track use . . .

Snow detector

SWITCH-heating equipment can be directly controlled or the dispatcher notified of ice, hail, sleet or falling or drifting snow, it is claimed, by means of a new snow detector. Consisting of a sensing head and control box unit, the detector is mounted in the track in such a manner that it will also detect snow dragged by trains. The control box unit is equipped with a timer which is stated to insure a minimum time cycle once the sensing head has been activated. It also contains a remote temperature controller for eliminating operation of the unit at elevated temperatures. The new snow detector is operated by 115-v ac, 60-cycle power, but can be provided for operation by direct current. *The Rails Company, Dept. RTS, 187 Maplewood Ave., Maplewood, N. J.*

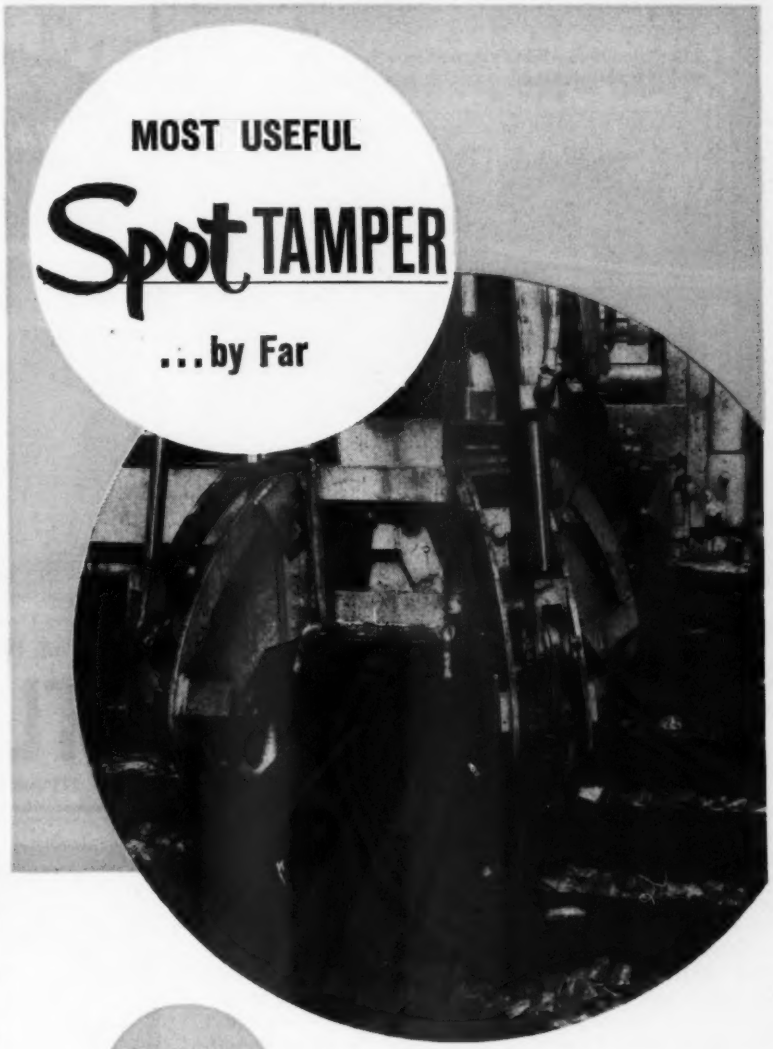
•

Aluminum alloy used for . . .

Shear plates

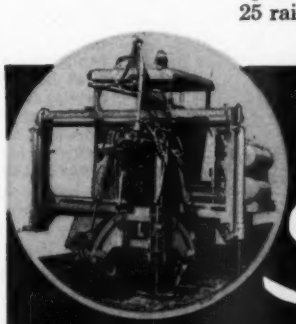
SHEAR VALUES of timber connections are claimed to be equal to that of the bolts used to fasten the timbers together when new aluminum alloy shear plates are inserted in the joints. This feature is stated to be accomplished by casting patented compression rings into the plate. The unit is pressure cast and has nails also cast as an integral part of the plate. The purpose of the nails is to eliminate the use of common nails for fastening the plates to the work. This is stated to increase the speed and efficiency of this portion of the work.

The manufacturer states that since the plates are rust-proof they require no galvanizing or painting and that rust marks on adjacent woodwork are eliminated. Furnished in two standard trade sizes, 4 in. in diameter by 5/8 in thick and 2 5/8 in. in diameter by 7/16 in thick, the new shear plates are stated to fit existing tools. *Timber Hardware Company, Dept. RTS, 3400 N. E. 54th Ave., Portland, Ore.*



Most useful and most widely used! That's true for three fundamental reasons: big-tamper ballast compaction . . . speed, with one man operation . . . tools which tamp effectively under the ties and under the rails.

Let us show you why the McWilliams Spot Tamper is reducing costs for more than 25 railroads.



McWILLIAMS
Spot TAMPER
Trial or LEASE Plans
RAILWAY MAINTENANCE CORPORATION
BOX 1688, PITTSBURGH 30, PA.

The Columbian—B&O's Stratadome Streamliner on famed Thomas Viaduct (1835) Relay, Maryland.

BALTIMORE & OHIO RAILROAD...

Cuts maintenance time and costs with Schramm mobilized compressor/tractor

Jobs get done faster at B&O where Schramm Self-propelled Pneumatractors are at work. As maintenance-of-way workers move forward on jobs, the Pneumatractor *drives along with them*, saves moving time and excess labor. The Pneumatractor goes on-track, off-track, under its own power (no towing or pushing!)—speeds any job where you need compressed air with its *full* 125 cfm output.

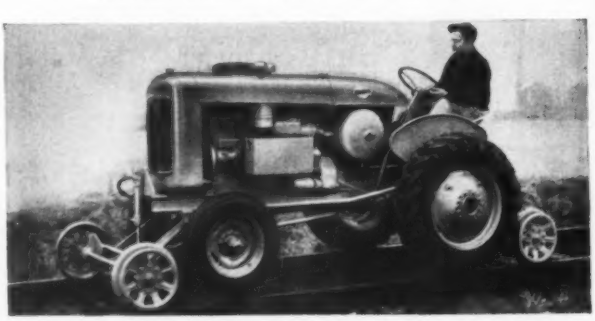
You can imagine the time and dollars saved here at B&O as this Schramm Pneumatractor drives along as the work progresses. First dollar savings come when you buy since they cost less than competitive portable compressors alone. Power packed, all-purpose, the Pneumatractor still costs up to $1000 less than other types of adapted self-propelled compressors.

B&O is but one of many railroads now using the Pneumatractor—*are you?* If not, get all of the information you need today by writing to Schramm, Inc.

Schramm, Inc.

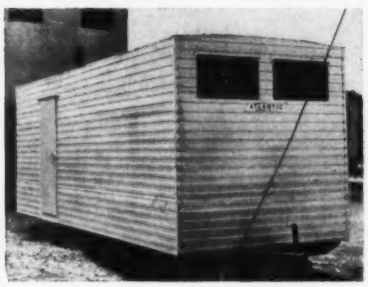
MANUFACTURERS OF AIR COMPRESSORS

732 North Garfield Ave. • West Chester, Pa.



Schramm Pneumatractor is an on-track, off-track self-propelled air compressor/tractor—all in one.

★ LOCKER ROOMS ★ NEW SECTION HOUSES ★ TOOL ROOMS
★ YARD OFFICES ★ CAMP CARS ★ MESS HALL UNITS

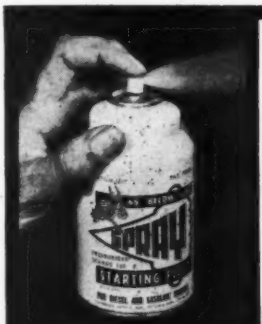


Sturdy attractive units that boost employee morale! Low in initial cost and available in many different sizes, these units can be easily re-located. Flexible in design, custom built construction at production line prices!!

Used by Central R.R. of N. J. and many others
Call, Wire, or Write for Consultation

ATLANTIC TRAILER CORP.

719 North Point Road, Baltimore 6, Md., ORleans 5-6620



START ENGINES EVERY DAY WITH SPRAY...

STARTING FLUID FOR DIESEL & GASOLINE ENGINES

Get more starts, quicker starts, at lower cost with SPRAY STARTING FLUID. Both the fluid and propellent burn . . . there's no waste! Each pressurized can contains enough fluid for many starts . . . starts that will sustain combustion until a smooth running engine can take over. Our greater supply of "vapor pressure" at all temperatures, atomized at a high initial rate, shortens cranking and warm up time, reduces dilution, prevents electrical and starting system wear, saves wasted man hours and equipment down-time. SPRAY is atomized for safe application and quantity control . . . use only as much as the engine requires. Field-proven SPRAY STARTING FLUID will start the toughest engine down to 65° below zero . . . but for year 'round economy start engines every day with SPRAY! Sold through automotive jobbers everywhere.

Ask about INSTNSTART closed system starting.

Insist on the can with the "balky donkey" trademark.

SPRAY PRODUCTS CORPORATION

P. O. Box 844 • Camden 1, New Jersey

We are Proud to have had the opportunity of doing the Ballast Cleaning and Rail Grinding on the Baltimore & Ohio Railroad

SPENO

We appreciate this very much and extend our congratulations to the B&O on its continued success.

Frank Speno Railroad Ballast Cleaning Co., Inc.

BALLAST CLEANING

SPENO Engineering and Research has developed a superior screening arrangement so that we are now using an improved Ballast Cleaner with greater efficiency.

RAIL GRINDING

Our Rail Grinding has been so well received we are now building a THIRD Rail Grinding Train to take care of the increased demand. SPENO is constantly developing means for better service to make sure that the Railroads receive everything they pay for—and more.

Just Ask the Railroads That have used us!

PRI MEMBER

FRANK SPENO RAILROAD BALLAST CLEANING CO., INC.

Clark Street
East Syracuse, N. Y.

306 North Cayuga St.
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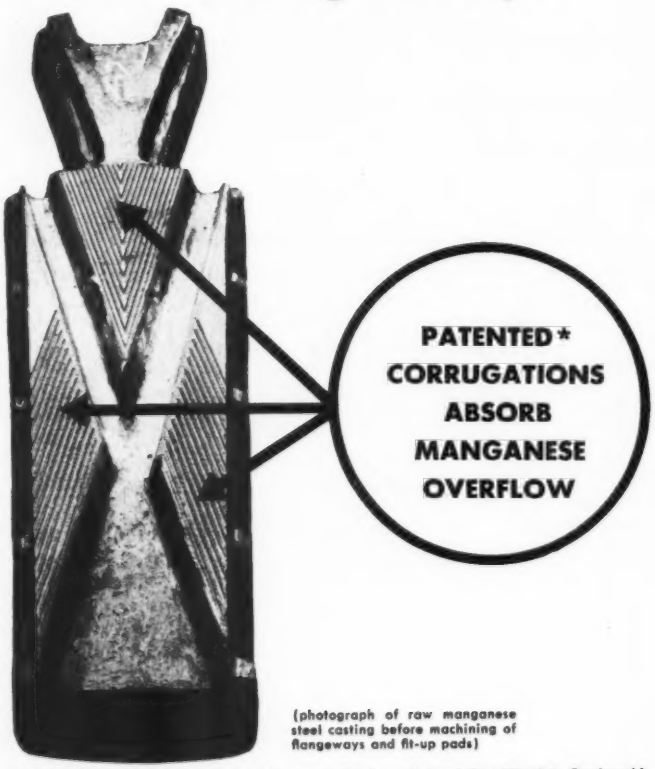
A NEW KIND OF MANGANESE FROG

It hardens under impact ... but won't "creep" into flangeways!



(photograph of raw manganese steel casting before machining of flangeways and fit-up pads)

AT LAST—The unique properties of Manganese Steel are being fully utilized in Trackwork!
Manganese steel is tougher than any known steel, because it hardens as it wears.
Now . . . patented corrugations keep flangeways clean of overflow metal.
Little or no grinding is needed.
Result: you reduce track maintenance and for the first time you get all of the benefits inherent in manganese steel.
Why not contact us now for more details?
** U. S. and Canadian patents applied for.*

THE
FROG, SWITCH & MANUFACTURING CO.
CARLISLE PENNSYLVANIA

Biographical briefs

(*Continued from page* 10)

in 1944. He received a Masters degree in civil engineering in 1947 from Harvard University. Mr. Peckover entered the service of the CNR in June 1959 after prior service with the Division of Building Research of the National Research Council of Canada and the St. Lawrence Seaway Authority.

Kenneth A. Truman, 48, who was recently promoted to regional engineer on the Canadian Pacific at Winnipeg, Man. (*RT&S*, Sept., p. 10), was born at Winnipeg and graduated from the University of Manitoba in 1935 with a degree in civil engineering. Mr. Truman entered the service of the CPR in 1929. After service as chainman and

A question . . . . . and an answer

Looking for the "What's the Answer?" department? It'll be back next month. It was omitted from this issue to allow more space for the special report on the B&O. Questions to be answered in February and March were published in earlier issues. Given below are the questions to be answered in the April issue.

Answers are solicited from readers. They should be addressed to the "What's the Answer" editor, Railway Track and Structures, 79 W. Monroe St., Chicago 3. An honorarium will be given for each published answer on the basis of its substance and length.

To be answered in the April issue

1. Should the front rubber-tired wheels of railroad-highway vehicles be "toed-in" to the same extent as on conventional automobiles? Why? What measures are necessary to assure that the proper toe-in angle will be maintained? Explain.

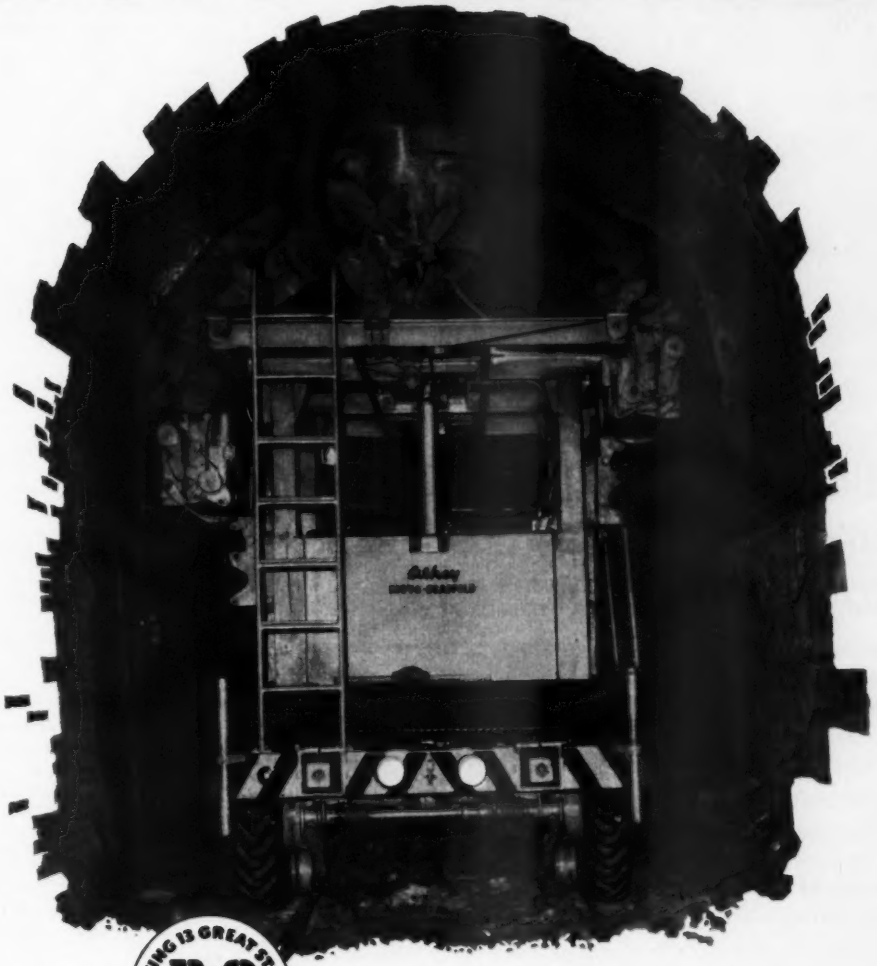
2. How can bridge inspectors determine whether decay is present in stringers of open-deck trestles? Of ballasted-deck timber structures? Explain fully.

3. What is the most economical method of disposing of old ties from out-of-face tie-renewal operations in city and suburban locations? In rural locations? Explain.

4. What are the determining factors for ventilating prefabricated metal buildings? How should dampers be used for the proper control of ventilation? What type of screens should be used and what allowances should be made for air flow? Explain.

5. When laying new rail having the same base width as the rail being released, should spikes be redriven in the old holes or into the unused tie-plate holes? Why? If the latter, should plugs be driven into the old holes? Why?

MOTO-SCAFFOLD

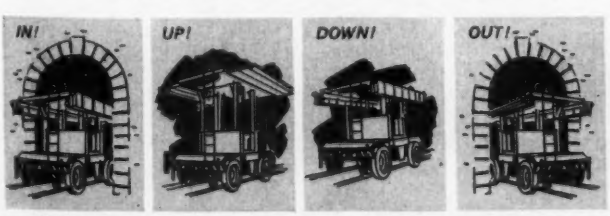


solves B&O tunnel problem!

Unique new motorized-scaffold unit gets to "inaccessible" jobs, then hydraulically expands into a complete scaffold system! Developed for B&O by Athey, Moto-Scaffold speeds up work in their extensive tunnel improvement and repair program.

Moto-Scaffold runs on rubber, follows rails on automatic guides. Not tied to track, it gets men and equipment in and out of tunnels at speeds up to 20 mph, forward or reverse! At the job site, four stabilizer jacks hit the earth. Platform eases up hydraulically. From each side, platform extensions fold out . . . descend to any point for men to work tunnel sides. All controls are at operator's fingertips.

In! Up! Down! Out! Problem jobs go fast with Moto-Scaffold, a new dollar-saver in the Athey family of railroad equipment. Get the full Athey story . . . write for Athey railroad literature today!



IN!—with men and equipment

UP!—platform rises, platform extensions fold out and descend to any point for worker convenience

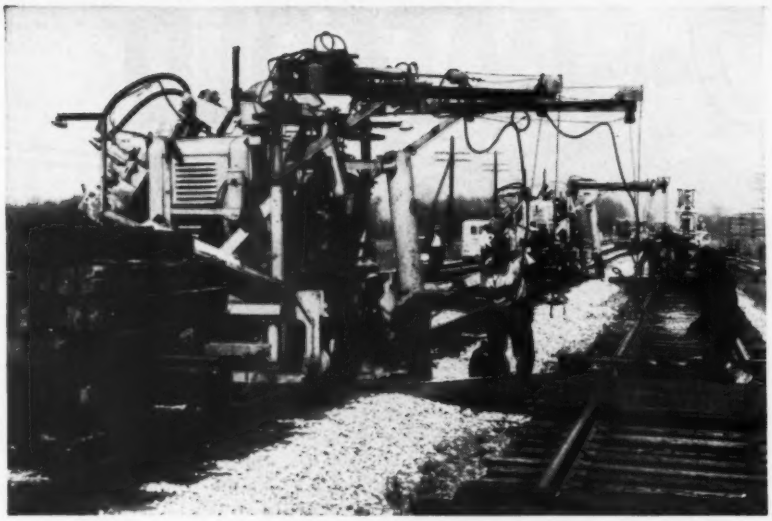
DOWN!—Moto-Scaffold contracts to its compact self

OUT!—at speeds up to 20 mph

Athey

MOTO-SCAFFOLD

Athey PRODUCTS CORPORATION, 5631 WEST 65th STREET, CHICAGO 38, ILLINOIS



RMC's tamper is typical example of equipment using up to 400 feet of Aeroquip Hose Lines in a variety of types, sizes and lengths.

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ON TRACK MAINTENANCE EQUIPMENT MADE BY RAILWAY MAINTENANCE CORP., PITTSBURGH, PA.

Railway Maintenance Corporation installs dependable Aeroquip Hose Lines with Reusable Fittings for air, hydraulic and fuel line applications on all its equipment.

Using Aeroquip, equipment users can make quick replacement of damaged hose lines on any type of equipment, from a small supply of bulk hose and reusable fittings. Aeroquip's network of railroad distributors assures you prompt shipment of replacement lines.

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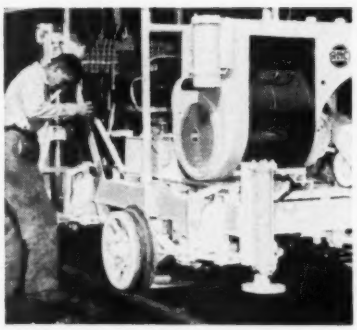

RMC "Linemaster", being checked on company's test track. Hose line maintenance is easy and low cost with Aeroquip Hose and Fittings.

2556 Hose—for engine water, air, lube oil lines. With *SOCKETLESS* Fittings, replacement hose lines can be assembled by hand.

2651 Hose—for up to 3000 psi. hydraulic, gasoline, oil, air and water lines. Resists abrasion, oil, mildew.

1509 Hose—for high pressure hydraulic and air lines up to 5000 psi, depending on size.

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SOCKETLESS is an Aeroquip Trademark. *SOCKETLESS* Fittings are Covered by U.S. Patent Number 2,805,088 and Corresponding Foreign Patents and Patent Applications.

Biographical briefs (cont'd)

laborer he was promoted to transitman at Calgary, Alta., in 1937. Mr. Truman was subsequently promoted to relieving roadmaster in 1943, roadmaster at Manyberries, Alta., division engineer at Medicine Hat, Alta., in 1944 and assistant district engineer at Vancouver, B. C., in February 1950. Nine months later he was advanced to special engineer at Winnipeg, serving also in that capacity at Calgary. He was promoted to district engineer there in 1951 and further promoted to assistant engineer maintenance of way at Winnipeg in 1956, the position he held at the time of his recent promotion.

J. L. Fergus, 69, who recently retired as assistant chief engineer of the Louisville & Nashville at Louisville, Ky. (*RT&S,* Sept., p. 10), was born at Bellefontaine, Ohio, and received his higher education at Ohio State University. Mr. Fergus entered the service of the L&N as a rodman on construction of the Wasiota & Black Mountain, being subsequently promoted to masonry inspector. He was later transferred to the Lexington & Eastern where he was further promoted to instrumentman. In 1912 he was advanced to assistant resident engineer, serving in this capacity at various locations. For a brief period in 1915 he served in the valuation department of the L&N, after which he was appointed assistant engineer on the Nashville, Chattanooga & St. Louis at Nashville, Tenn. Mr. Fergus subsequently served as supervisor track, resident engineer, division engineer, assistant chief engineer and acting chief engineer of the NC&StL. He was promoted to assistant chief engineer of the L&N in 1957 when that road absorbed the NC&StL.

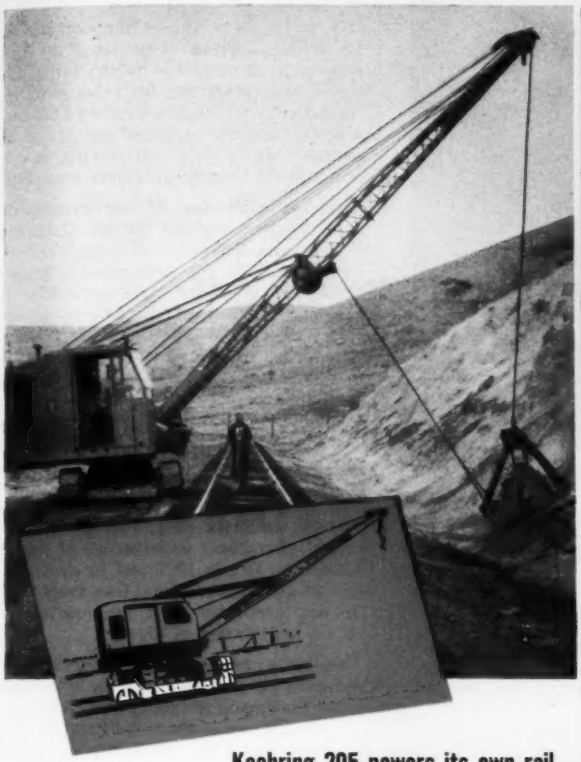
William Landess, 65, who recently retired as chief engineer of the Chicago Union Station at Chicago (*RT&S,* Sept., p. 10), was born at Chicago and received his higher education at Lewis Institute of Technology. Mr. Landess entered railroad service in 1916 with the Burlington, serving as construction electrician, general foreman and estimator. He joined the Chicago Union Station in 1922 as chief electrician. He subsequently was promoted to assistant mechanical superintendent in 1928, construction superintendent in 1938 and mechanical superintendent in 1945. Mr. Landess was advanced to chief engineer in 1949.

Joseph Stillson, 41, who was recently promoted to general foreman-structures on the Pennsylvania at Johnstown, Pa. (*RT&S,*

William Landess
CUS

Joseph L. Fergus
L&N

2 WAYS to simplify track maintenance:



Koehring 205 powers its own rail car . . . loads, unloads itself in 10 min. . . . works on or off-track

Wherever there's excavating, lifting or material-handling to be done, Koehring® RailAid® takes to the rails — travels on-track from one work-section to the next at speeds up to 20 m.p.h. It's self-propelled — does 2 to 3 times the work of other excavators or cranes that have to crawl or be hauled from job to job.

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Koehring® Mud-Jack® stabilizes track-bed, leaves firm sub-grade, no interruption to rail traffic

Here's a labor-saving way to get better conditioned track, and reduce "slow orders". Koehring Mud-Jack corrects pockets in ballast and sub-grades without interrupting rail traffic. Injection points are driven into the lower ballast. Mud-Jack pumps a soil-cement slurry into weakened area — displaces air, water and water-saturated material — leaves firm *permanent* sub-grade. High fills, as well as shallow grades, are treated by the Mud-Jack method. Slurry can be forced 70 feet deep or more, to stabilize fills at trestle ends. Production capacity: Pumps 200 cubic feet of slurry per hour at pressure of 400 PSI. Read all about it in the new Mud-Jack catalog.

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At a moment's notice . . .

"Runs" to job under its own power

In less than 4 minutes, Tournatractor® travels a mile under its own power to handle railroad maintenance jobs in your yard or along the right-of-way. This 17 mph tractor does not damage tracks or switches, does not trip automatic block signals. It handles a wide variety of chores quickly — cleans drainage ditches, removes slides, cuts down banks, fills washouts, reinforces causeways and bridge approaches. 1 man and 1 machine can do many maintenance tasks in a single day.

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218 hp L-W Tournatractor not only gets to jobs under its own power in much less time than crawler-tractors can be hauled there . . . it also finishes them sooner. Four speeds forward to 17.2 mph and two reverse to 7.2 mph help you complete most tractor assignments in as little as *half the time* that it takes the average crawler!

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A coupler-equipped model of this proven rubber-tired M/W machine — the SwitchTractor†, is also available. Besides dozer on front, SwitchTractor mounts standard AAR rail coupler on the rear . . . can help in emergency switch work.

Compare L-W tractor's advantages with those of other units used in your division. You'll see why major railroads and dirtmovers are adding modern LeTourneau-Westinghouse Tournatractors and SwitchTractors to their equipment fleets. Full details, and a demonstration, on request.

†Trademark CT-1890-RR-2/3

Versatile L-W Tournatractor can help other equipment as well as work independently. Here it push-loads a 9-yd D Tournapull®, which is handling long-haul earthmoving along right-of-way. Tournatractor can mount a variety of dozing tools, tow work units. Coupler-equipped model, the SwitchTractor, spots rail cars on emergency request.

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Peoria, Illinois
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Where quality is a habit

LW

PROUD TO PROGRESS
P R I
MEMBER

Biographical briefs (cont'd)

July, p. 10), was born at Summerville, Pa. Mr. Stillson entered the service of the PRR in 1941 as a carpenter helper, being promoted to carpenter the following year. He subsequently served as temporary bridge inspector, carpenter foreman and bridge inspector. Mr. Stillson was serving as carpenter at the time of his recent promotion.

George A. Phillips, 70, who recently retired as chief engineer of the Delaware, Lackawanna & Western at Hoboken, N. J. (*RT&S,* Oct. p. 10), was born at Boston, Mass., and graduated from the University of Maine in 1911 with a Bachelor of Science degree in civil engineering. Mr. Phillips commenced his railroad career on the Lehigh Valley in 1912 in the engineering corps at Buffalo, N. Y. He was promoted to assistant engineer at Sayre, Pa., three years later and to supervisor track at Delano, Pa., in April 1916. In November of that year he was further promoted to division engineer at Hazleton, Pa., serving also in this capacity at Sayre. Mr. Phillips was advanced to engineer maintenance of way at Bethlehem, Pa., in 1926 and to chief engineer of maintenance there four years later. He was appointed chief engineer of the DL&W at Hoboken in 1934.

Donald V. Sartore, 31, who was recently promoted to assistant engineer of bridges of the Burlington at Chicago (*RT&S,* Sept., p. 10), was born at Elmwood Park, Ill., and graduated from the University of Illinois in 1949 with a Bachelor of Science degree in civil engineering. Mr. Sartore entered the service of the Burlington in 1949 as a draftsman at Chicago. He was promoted to assistant engineer there in 1951, the position he held at the time of his recent promotion.

Charles I. Van Arsdalen, 70, who recently retired as division engineer on the Illinois Central at Carbondale, Ill. (*RT&S,* Oct., p. 10), was born at Wilmington, Del., and received his higher education at the University of Delaware. Mr. Van Arsdalen commenced his railroad career on the IC in 1911 as a rodman at Freeport, Ill. The following year he was promoted to instrumentman at Carbondale. Subsequently he was further promoted to masonry inspector at Memphis, Tenn., in 1913; computer at Chicago in 1915; and resident engineer at Greenwood, Miss., in 1917. Mr. Van Arsdalen was appointed assistant engineer at Dubuque, Iowa, in 1923, serving also in this capacity at Carbondale. He was advanced

George A. Phillips
Lackawanna

Donald V. Sartore
Burlington

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STRENGTH in all phases of manufacture—made of heavy alloy spring steel, carefully formed, heat treated, and pre-tested before shipping. **DURABILITY** is inherent in the Improved Gautier. Spring power plus take up allows use on new or old rail. Designed so it cannot be overdriven and lasting the life of the rail. It affords . . . **ECONOMY** to the user. Applied with sledge, maul or machine

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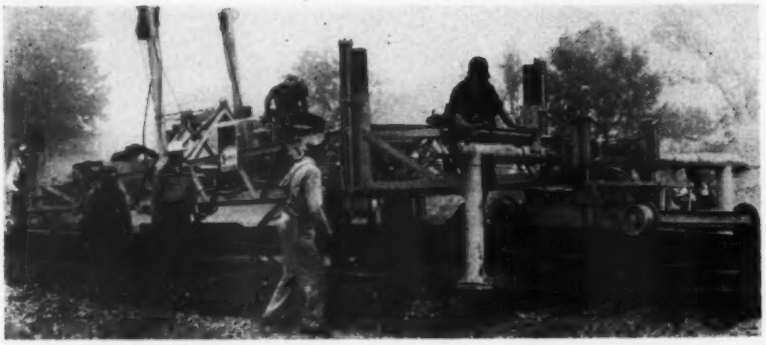
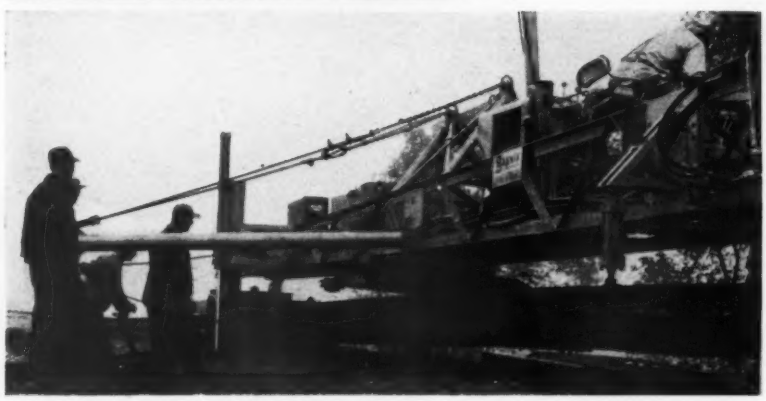


Machine knocks off, ejects ties, lines track behind plow while above subgrade.

Mannix AUTO-TRACK Eliminates 15 to 20 Men

PLOWING, TIE REPLACEMENT, TRACK ALINEMENT are accomplished faster and with fewer men using the new Mannix AUTO-TRACK unit.
Hydraulic hammer on each side knocks tie down. Conveyor belt ejects tie to either side.

Lining head controlled by levers near rear end where operator observes alinement. One man replaces lining crew.



Unit raises track, pulls plow under or out from under track. Trained crew removes machine from track in about 10 minutes.

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Biographical briefs (cont'd)

to supervisor track at Christopher, Ill., in 1924 and further advanced to division engineer at East St. Louis, in 1929. Mr. Van Arsdalen was transferred to Carbondale in 1938.

Robert T. Fortin, 30, who was recently promoted to division engineer on the New York Central at Indianapolis, Ind. (*RT&S*, July, p. 10), was born at Havre, Mont., and graduated from Purdue University in 1953 with a Bachelor of Science degree in civil engineering. He entered the service of the NYC in 1953 as an engineering assistant at Springfield, Ohio, being promoted to junior engineer at Bellefontaine, Ohio, the following year. After serving in this capacity at New York he was advanced to assistant methods engineer at Indianapolis in 1955. The following year he was appointed district personnel assistant there. Mr. Fortin was promoted to assistant division engineer, also at Indianapolis, in 1957, the position he held at the time of his recent promotion.

Isaac D. Talmadge, 65, who recently retired as engineer maintenance of way of the Lehigh & Hudson River at Warwick, N.Y. (*RT&S*, July, p. 10), was born at Mountain Lake, N.Y. Mr. Talmadge commenced his railroad career in 1911 with the New York, Ontario & Western, serving in the engineering corps and the valuation department until July 1918 when he entered military service. After serving six months in the Field Artillery, U.S. Army, he returned to the NYO&W and was appointed assistant roadmaster. He was subsequently promoted to roadmaster in 1920, valuation engineer in 1941 and district engineer in 1942. Mr. Talmadge joined the Lehigh & Hudson River in 1944 as roadmaster. He was promoted to engineer maintenance of way in 1950.

William Glavin, 39, who was recently promoted to district engineer on the Pennsylvania at Harrington, Del. (*RT&S*, Aug., p.10), was born at Lancaster, Pa., and graduated from Pennsylvania State University in 1942 with a Bachelor of Science degree in civil engineering. Mr. Glavin entered the service of the PRR in 1941 as a chainman, being appointed engineering apprentice the following year upon graduation from college. In September 1942 he entered military service with the U.S. Army Corps of Engineers. Returning to the PRR in 1946 he was appointed assistant in the engineering corps of the New York division. The following year he was promoted to assistant supervisor track and in 1949 was further promoted to supervisor track. Mr. Glavin was advanced to assistant district engineer at Altoona, Pa., in 1955, the position he held at the time of his recent promotion.

John A. Carey, 33, who was recently promoted to assistant division engineer on the New York Central at Toledo, Ohio (*RT&S*, Sept., p. 10), was born at Long Lake, N.Y., and received his higher education at both Mohawk College and the Clarkson College of Technology. He entered the service of the NYC in 1952 as a chainman at Albany, N. Y., being promoted to junior engineer at Utica, N. Y., the following year. He was

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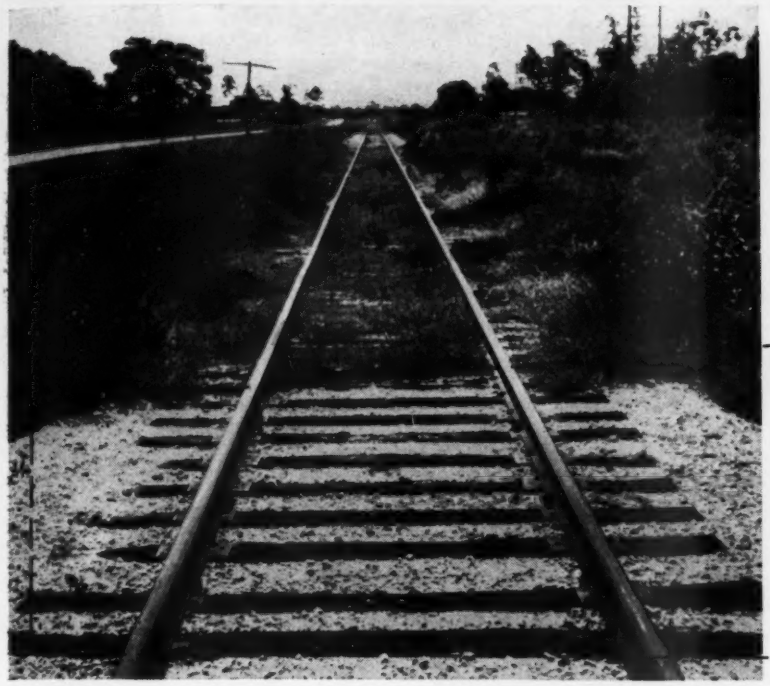

Dramatic proof of Urox's effectiveness! Unretouched photo shows test patch along Florida railway still weed-free 6 months after applying Urox. Urox is the fast, effective way to eradicate top growth and destroy moisture gathering roots that grow into crossties and help cause fungus rot.

Yes, now you can kill more weeds—per mile – per dollar with General Chemical's Urox Weed Killer. Urox is so effective *just one application will wipe out weeds and brush for as long as 8 to 18 months!* Results carry over, too! Because the effects of Urox are cumulative, herbicidal action can be extended from one year to the next with light booster doses. As smaller and smaller amounts are used over a period of time you realize substantial savings!

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Liquid Urox can be shipped to you conveniently by rail in tank cars for spraying along right-of-ways. It kills all weeds fast, regardless of weather, usually within 10 to 12 hours. Compare this fast action with other weed killers which take up to 2 weeks to kill!

Granular Urox is especially well suited for controlling weeds and brush in railroad yards, on spurs, sidings, around storage depots and other railroad installations. Application can be made with ordinary mechanical or hand-operated spreaders.

New Urab* kills deep-rooted brush and weed trees! If you have problems with tough, deep-rooted weeds, brush, or weed-trees, *New Urab Weed Killer* is just what you're looking for. Urab actually *penetrates soil* to kill deep roots. Does what no other herbicide can. Both Urox and Urab are supplied in liquid or granular form.

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Biographical briefs (cont'd)

subsequently promoted to assistant methods engineer at New York in 1955, assistant supervisor bridges and buildings at Jackson, Mich., in 1956, assistant division engineer at New York in 1957, and office engineer there in March 1958. Mr. Carey was appointed supervisor track at Elkhart, Ind., in September of that year, the position he held at the time of his recent promotion.

William G. Jones, 33, who was recently promoted to assistant division engineer on the New York Central at Utica, N. Y. (*RT&S*, Sept., p. 10), was born at Wilkes-Barre, Pa., and graduated from Pennsylvania State College in 1951 with a Bachelor of Science degree in civil engineering. Mr. Jones entered the service of the NYC in February 1951 as an instrumentman at Cleveland, Ohio. He was promoted to assistant supervisor track at Chicago two years later and to assistant engineer at Cleveland in 1954. Mr. Jones was appointed supervisor track there in 1958, the position he held at the time of his recent promotion.

Jessie C. Hefner, 51, who was recently promoted to roadmaster on the Chicago, Rock Island & Pacific at Wichita, Kan. (*RT&S*, Nov., p. 10), was born at Werden, Okla. He entered the service of the CRI&P in 1929 as a section laborer, being promoted to relief foreman in 1936. In 194[illegible] he entered military service with the U. S. Navy, returning to the CRI&P upon discharge. Mr. Hefner was promoted to section foreman in 1946 and to extra gang foreman in 1948. He was further advanced to track supervisor at Dallas, Tex., in 195[illegible] the position he held at the time of his recent promotion.

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provides more Holding Power than you ever need

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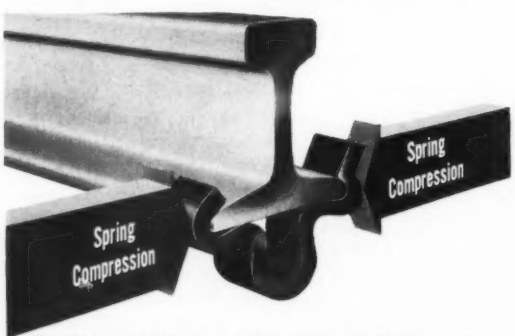

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Association News

Maintenance of Way Club of Chicago

The next meeting of the club will be held on January 25 at the Hamilton Hotel, Chicago, with dinner starting at 6:30 pm. The principal speaker will be C. E. Jackman, assistant chief engineer — maintenance, Baltimore & Ohio, Baltimore, Md. The subject of his talk will be "Reorganization and Mechanization of Track Forces on the B&O."

At the previous meeting, held on December 21, a panel discussed the subject "Asphalt Treated Ballast and Roadbeds." Movies and slides augmented the discussion. Members of the panel were: Rockwell Smith, research engineer roadway, AAR; John M. Griffith, research engineer, Asphalt Institute; and Walter E. Axcell, district engineer, Santa Fe.

Northwest Maintenance of Way Club

The next meeting will be held on January 28 at Coleman's Cafe, 2239 Ford Parkway, St. Paul. Principal feature of the program will be a color-sound moving picture showing operation of the "Auto-Track," a track-working device produced by Mannix International, Inc. George M. Cooper, a manufacturers' representative in the railroad field, will also speak.

American Railway Engineering Association

A number of standing committees have scheduled meetings to be held in January. These include:

Buildings, January 21-22, Patten Hotel, Chattanooga, Tenn.; Masonry, January 26-27, King Edward Hotel, Jackson, Miss., including inspection of the Waterways Experiment Station; Yards and Terminals, January 18-19, Marriotte Motor Hotel, Arlington, Va., including inspection of the RF&P's Potomac yard; Economics of Railway Labor, January 18, New Orleans, La.

To date only one committee is scheduled to meet in February. The committee on Wood Bridges and Trestles will meet on February 4-5 at the Sheraton Charles Hotel, New Orleans, La., including an inspection trip to observe deck replacement work on the Huey Long bridge over the Mississippi river.

(*More on page* 70)

M/W officials see

new low-cost brush disposal method!

A new and highly effective method for complete brush control was seen by attentive maintenance of way officials at a recent demonstration near Chicago. International® Danco heavy-duty rotary mowers mounted on IH tractors gave an eye-opening exhibition of tremendous cutting capacity, safety, and dependability. Heavy brush and saplings up to four inches in diameter were bowled over by IH tractor brawn and power. Heavy whirling blades in the *center-mounted* mower quickly shred brush for a total kill down to ground level. Center-mounting lowers the unit's center of gravity to permit safe mowing on steep side slopes. Superior mowing ability combines with built-in stamina to insure many seasons of top performance.

M/W officials taking a close look at the extra-rugged 94-inch International Danco rotary mower mounted on the 61 hp* F-460 tractor. The 45 hp* F-340 with 66-inch International Danco mower is illustrated at top of page.

An IH dealer near you will gladly show you why International Danco mowers and IH tractor power are today's most dependable and safest buy in high-capacity mowing equipment, 58 to 94-inch cutting widths available. For dealer's name and specification sheets, write International Harvester Co., Dept. RTS-1, P. O. Box 7333, Chicago 80, Illinois.

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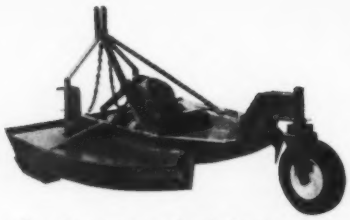
International Harvester products *pay for themselves in use*—Farm Tractors and Equipment . . . Twine . . . Industrial Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois



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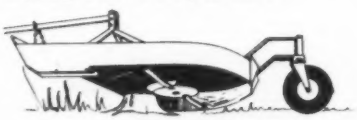
Here's how Covington Cutters save money on heavy work:

The Covington Cutter is engineered for heavy industrial work and not only out-performs but outlasts ordinary cutters. Massive, all-welded construction, an exclusive shielded flywheel and safety clutch are features that enable a Covington to take the toughest work in stride. So powerful it chews up anything a tractor can push over!



Rides over stumps and rocks without damage or slow-down!

. . . the heavy flywheel conveys unmatched power to serrated cutting blades and is shielded to slide easily over obstacles.

For tractors and Jeeps with 3-point lift.

The savings on repairs and man-hours will quickly pay for a Covington! A quality product of the manufacturer of famous Covington Planters since 1912.

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Association news (cont'd)

Neal D. Howard, executive secretary of the association, has announced that all physical arrangements for the annual convention, to be held at the Sherman Hotel, Chicago, on March 14-16, 1960, are now complete. In addition to the regular committee reports, 18 special features will be presented, each under the sponsorship of one of the technical committees. As in previous years, registration will commence on Sunday morning, March 13.

S. C. Johnson succeeds Lewis Thomas in ATSS, NRAA

Samuel C. Johnson

Samuel C. Johnson, vice president—transportation relations, Dearborn Chemical Company, has been appointed to the positions in the Association of Track & Structure Suppliers and the National Railway Appliances Association made vacant by the death of Lewis Thomas on October 13. These positions include those of executive secretary of the ATSS and assistant secretary of the NRAA.

In this capacities with the associations, which became effective December 1, Mr. Johnson has established offices in Room 375, Merchandise Mart, Chicago 54, Ill. He will continue as vice president of the Dearborn Chemical Company.

Mr. Johnson has been identified with the railroad field since 1923, and has served with Dearborn Chemical since 1930. For many years he has been a member of the AREA's General Convention Arrangements Committee, of which committee he is now general chairman.

Supply Trade News

AEROQUIP CORPORATION — Victor Emery, manager of manufacturers' sales, Industrial Division, has been promoted to general sales manager of the division at Jackson, Mich., and **M. Lloyd Jones, Jr.,** manager of distributors' sales, Industrial Division, has been promoted to general manager of the General Logistics Division at Burbank, Cal., according to an announcement by **Peter F. Hurst,** president of the company.

AMERICAN HOIST & DERRICK CO.—H. M. Patton, works manager, and **K. F. Potter,** director of engineering, have been elected vice presidents, according to an announcement by **John E. Carroll,** president.

BUCYRUS-ERIE—The **W. W. Williams Company,** Columbus, Ohio, has been appointed distributor of this company's cranes, excavators and rotary drills in Ohio and parts of Kentucky and Indiana.

A. M. BYERS COMPANY—Three new distributors of 4-D pipe have been appointed, according to an announcement by **R. I. Inzian,** manager of wrought iron sales. They are: **Standard Supply Company,** Greenville, S. C.; **Gulf Coast Marine Supply Company,** Mobile, Ala.; and **I. Bahcall, Inc.,** Appleton, Wis.

L. B. FOSTER COMPANY—According to an announcement by **Charles G. Hugus, Jr.,** vice president and district manager of this company, the following new sales representatives have been appointed at New York: **Howard R. Elliot,** who will handle construction products and rail and track accessories; and **Andrew Z. Koi** and **Carl M. Duede,** who will each specialize in pipe, valves and fittings.

NALCO CHEMICAL COMPANY—Robert G. Bielenberg, assistant vice president, has been promoted to manager of the transportation division, succeeding **James L. Gibboney,** vice president, who will increase his activities in Nalco's international and general management operations. Mr. Bielenberg has been associated with Nalco since 1937 and was appointed an assistant vice president in 1955.

D. W. ONAN & SONS, INC.—Robert L. Wentrum has been appointed manager of original equipment sales.

TEXACO—H. W. Lostrom has been appointed division sales manager, railway sales, Chicago, effective December 1, succeeding **A. W. Larsen,** who has retired after 40 years of service with the company.

HOWARD & GOULD TIE-BORING TWIST DRILLS

Preferred by track departments now using them. Made of the toughest drill steel and designed for PREMIUM PERFORMANCE WITHOUT PREMIUM PRICES.

FOR NORDBERG TIE DRILLS and DUN-RITE GAGING MACHINES

FOR RACO TIE DRILLS

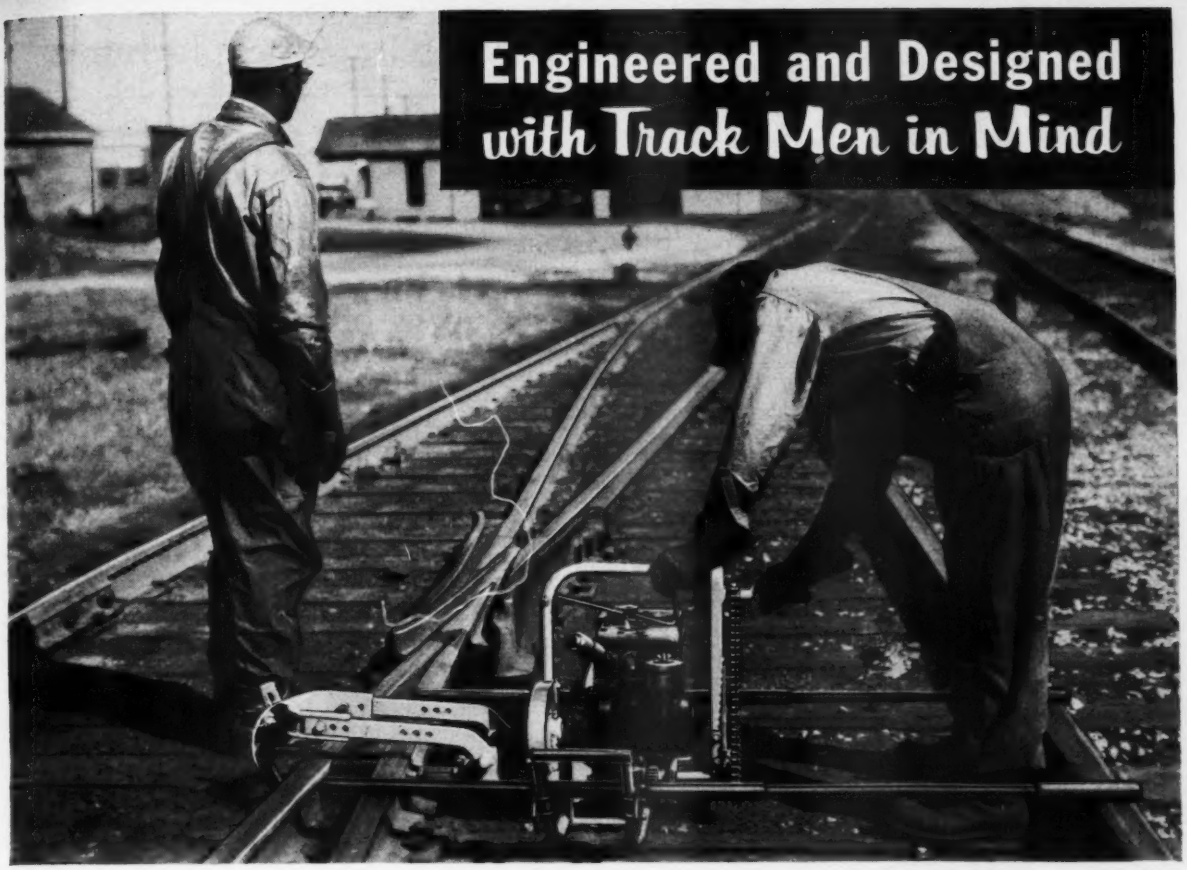
Improved HOWARD & GOULD drill bits have proved to be the best labor and money savers for field tie boring. Breakage is minimized and less drills are used per job.

Four Standard recommended sizes are normally stocked for prompt delivery. Non-standards up to size ⅝" x 12" supplied on short order.

Bulletin on request.

Howard & Gould Co.

5306 W. Lawrence Ave., Chicago 30, Ill.



Engineered and Designed with Track Men in Mind

WESTERN FORMERLY BUDA Power Track Drill

Here is a vital piece of equipment in keeping track modernization, expansion and maintenance programs in high gear—the Model P power track drill that has ALL the features essential to economical operation.

EASILY SET UP...and ACCURATE. Can be located from top of rail (with optional telescopic support and locater rods) or positioned on ties and ballast (with long overclutch and adjustable rail guide). No change in set up necessary while working on same size rail.

COMPACT and PORTABLE. Weighs only 130 pounds. Can be started, operated and slid along the rail *by one man.* Easily carried overland by two men.

DEPENDABLE. Gives all-weather, long-life service. Powered by easy-starting 1¾ h.p., 4-cycle Briggs & Stratton air-cooled gas engine. Equipped with Timken roller thrust bearing. Versatile spindle sleeve handles all flat drills from 7/16" to 1 9/16".

SAFE. Can be released and removed from track within 10 seconds . . . no stopping and backing off.

CONTROLLED FEED. Avoids broken and prematurely dulled drills. Sensitive crank-chain mechanism allows operator to vary the thrust accurately according to the hardness of the rail and sharpness of the drill.

FAST. Drills 1⅛" hole in 90 lb. rail in 30 seconds . . . in 155 lb. rail in less than 90 seconds.

HYDUTY-PAULUS MANUAL TRACK DRILL

A track maintainer's tool that every section house should have. Special safety and adjustment features assure precision drilling plus instant emergency detachment.

6803

Write for Detailed Information

WESTERN RAILROAD SUPPLY COMPANY

Division of Western Industries, Inc.

2742 West 36th Place, Chicago 32, Illinois

IN CANADA: Melville Machinery Co., Ltd., 515 Bisson Street, Montreal 3, Quebec

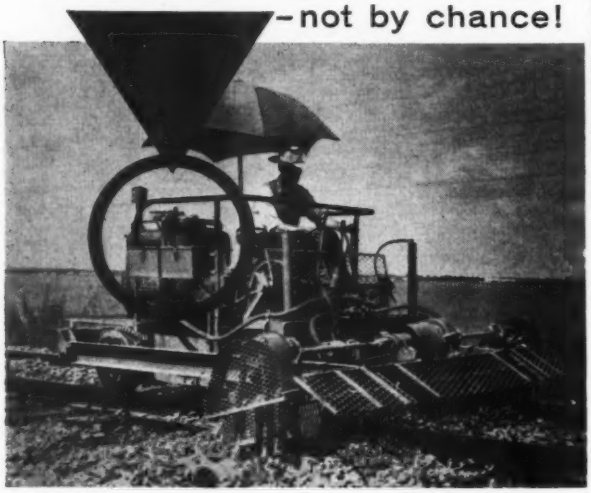
One of a series of ads featuring new WESTERN products formerly supplied by BUDA

In mechanized m/w operations

WISCONSIN ENGINES

are **FIRST BY CHOICE**

–not by chance!



TIE BED SCARIFIER, made by Fairmont Railway Motors, Inc., Fairmont, Minn., is powered by a 37-hp Wisconsin engine.

And here's the proof you want — *85% of the mechanized m/w equipment* in the 3- to 56-hp class displayed at the 1959 Railroad Show in Chicago was *Wisconsin-powered!* Your personal survey of track-maintenance applications will bear this out.

Why this one-sided preference? Chiefly because railroad equipment builders are sold on the all-around quality and the year-around dependability of Wisconsin engines. Maintenance-of-Way Departments bank heavily on Wisconsin all-weather reliability because m/w work must go on without regard to the time of day or season.

All Wisconsin engines are of heavy-duty design and construction. This, plus trouble-free air-cooling and an impulse-coupled high-tension magneto, assures fast starts and smooth power in sub-zero cold or in 140° F. heat. Air-cooling also eliminates up to 26 parts used on water-cooled engines, as well as the headaches and costs these parts bring through normal wear or just plain neglect.

Specify dependable Wisconsin power on your mechanized m/w equipment. Send for Bulletin S-249 covering the entire line. Write Dept. R-20.

WISCONSIN MOTOR CORPORATION

MILWAUKEE 46, WISCONSIN

World's Largest Builders of Heavy-Duty Air-Cooled Engines

R-115

Helps from Manufacturers

The following compilation of literature—including pamphlets and data sheets—is offered free to railroad men by manufacturers to the railroad industry. To receive the desired information, write direct to the manufacturer.

●

WHEELED TRACTORS. Two eight-page booklets are available which explain the operation of the new Caterpillar SynchroTouch transmission control as applied to the 345-hp DW20 and DW21 Series G Tractors. Designated Forms 33613 and 33614, resepectively, the booklets utilize schematic drawings to illustrate the operation of the new system when the desired gear range is dialed by the gear selector. In addition, the booklets describe and illustrate the Nos. 456, 470 and 482 Series B Lowbowl scrapers and several models of Athey trailers. Brief specifications of each tractor and scraper are included. (Write: *Caterpillar Tractor Company, Dept. RTS, Peoria. Ill.*)

PROTECTIVE COATINGS. A new 38-page, 4-color catalog is available which describes the Rust-Oleum systems of rust and corrosion control. Entitled "New Color Horizons," the catalog, Form 259, describes the features of the company's various protective coatings. Color application photographs and 110 color chips show the colors available. Included is a technical data section which gives information on surface preparation, application techniques, quantity estimating, glossary of terms, mixing, thinning and drying. (Write: *Rust-Oleum Corporation, Dept. RTS, 2799 Oakton St., Evanston, Ill.*)

TRUCK CRANE. A new 16-page catalog, 770-TG-2, is available which describes the 60-ton capacity American 700 Series truck crane. The operating and mechanical features of the unit are described and illustrated. On-the-job photographs show the machine working with hook and bucket. The catalog also describes and illustrates how the crane is stripped down and retracted for transportation. (Write: *American Hoist & Derrick Co., Dept. RTS, 63 So. Robert St., St. Paul, Minn.*)

GROUTING METHODS. An eight-page bulletin, EPMG-2A, is available which describes and illustrates the use of Embeco Pre-Mixed Grout for providing maximum bearing for heavy industrial equipment. The bulletin gives the methods and techniques of good grouting practice as well as the characteristics of the pre-mixed grout. Preparatory steps, forming, selecting materials and mixing and placing the grout are explained by the use of diagrams, charts and pictures. Information is also included on cold and hot-weather grouting. (*Write: The Master Builders Company, Dept. RTS, Cleveland 3, Ohio.*)

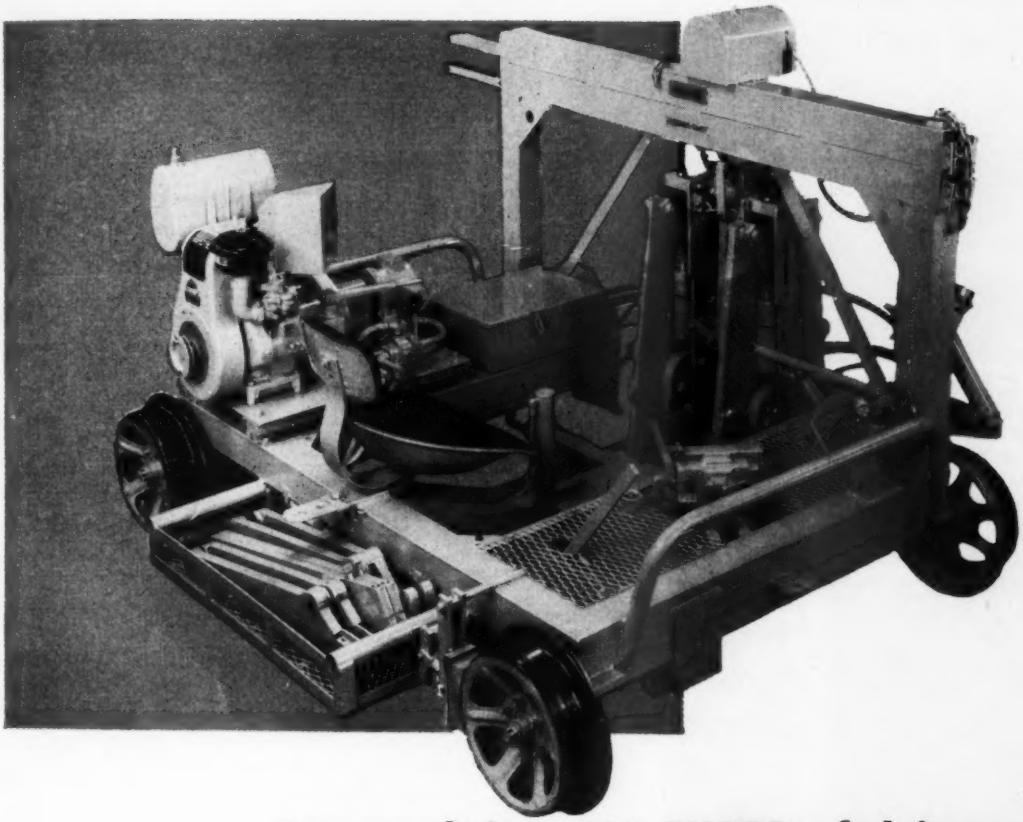
CRAWLER TRACTOR. Features of the new International TD-6 crawler tractor are described and illustrated in a 2-color, 16-page catalog. Photographs and cut-away drawings show the mechanical and operating features of the machine, such as standard and optional transmissions, push button, direct starting, new track rollers and three-point mounting. The matched equipment and attachments available for use with the machine are listed. (Write: *International Harvester Company, Dept. RTS, 180 N. Michigan Ave., Chicago 1, Ill.*)

WINCHES. The Thern line of hand and power winches, with capacities up to 5000 lb, is described and illustrated in a six-page catalog now available. The catalog, Form TW58A, gives specifications of each model, including spur-gear and worm-gear types. A table is included which lists the breaking strength of various diameters of steel cable and manila rope. A number of uses for the winches are illustrated and briefly described. (Write: *Thern Machine Company, Dept. RTS, Winona, Minn.*)

ROLLING DOORS. Fourteen types of Mahon steel rolling doors are described and illustrated in catalog G-60. The 16-page catalog gives engineering data, including tables of clearance dimensions and drawings, for various types of doors, both underwriters' labeled and non-labeled, such as standard hand doors, mechanically and power-operated doors, and automatic fire doors, as well as window shutters and grilles. Specifications are also included. In addition, the catalog gives information on installation and operating devices, special weathering, windlocks and transparent windows. (Write: *R. C. Mahon Company, Building Products Division, Dept. RTS, East 8-Mile Road, Detroit 34, Mich.*)

RACINE

Hydraulically operated "Anchor Fast" ANCHOR APPLICATOR



For applying ALL TYPES of drive-on or tool applied hang-on anchors

The only machine, of its kind, in the field. The "Anchor-Fast" is hydraulically controlled and self-propelled. Maximum speed 15 mph. Unit is powered by a hydraulic jack cylinder for "off track" movement or can be revolved 180° for work on opposite rail.

CONSTRUCTION AND OPERATION FEATURES

- Smooth hydraulic pressure with adjustable stops, prevents over driving.
- Positive anchor-to-tie application.
- Machine can be used for either single or box anchoring.
- Powered by a 9.2 hp gas engine with clutch and reduction gear.
- Size of unit—95" x 75" x 56". Wgt. 2300 lbs.

RACINE SECO

RACINE HYDRAULICS & MACHINERY, INC.

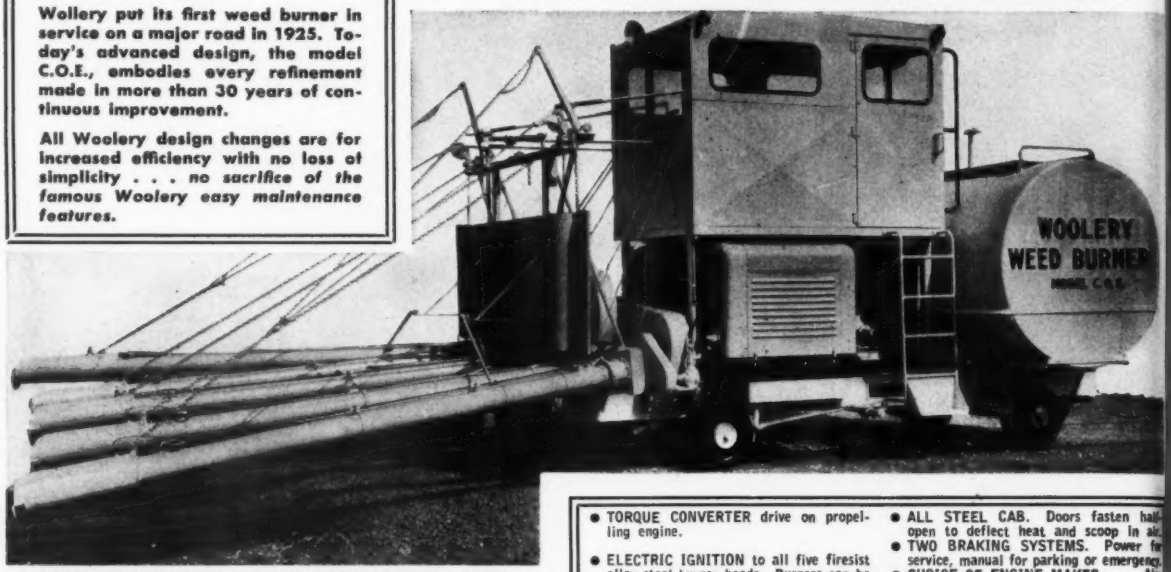
Machinery Division **Racine, Wisconsin**

DESTROYS VEGETATION ON ROAD BEDS, EMBANKMENTS AND DITCHES — QUICKLY CLEARS SNOW FROM YARDS AND SWITCHES

Woolery put its first weed burner in service on a major road in 1925. Today's advanced design, the model C.O.E., embodies every refinement made in more than 30 years of continuous improvement.

All Woolery design changes are for increased efficiency with no loss of simplicity . . . *no sacrifice of the famous Woolery easy maintenance features.*

THE FAMOUS **WOOLERY**
HEAVY-DUTY WEED-BURNER
is an excellent SNOW-MELTER



- **TORQUE CONVERTER** drive on propelling engine.
- **ELECTRIC IGNITION** to all five firesist alloy steel burner heads. Burners can be used individually or all five together. Outer burners can be manipulated from cab while machine is in operation.
- **ALL STEEL CAB.** Doors fasten half-open to deflect heat and scoop in air.
- **TWO BRAKING SYSTEMS.** Power for service, manual for parking or emergency.
- **CHOICE OF ENGINE MAKES . . .** Also available in 3-burner, 2-burner or 1-burner models.

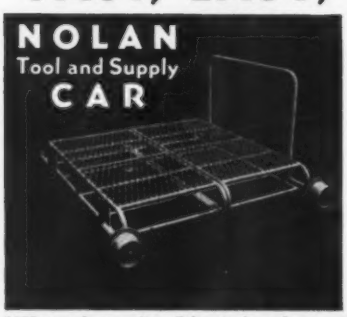
Literature and specifications on request.

Also manufacturers of Woolery Tie Cutters, Tie End Removers, Bolt Tighteners, Spike Drivers, Track Tool Transporters, Motor Cars and Joint Oilers.

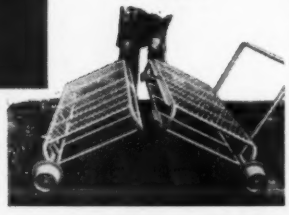
WOOLERY MACHINE CO.
Established 1917 • 29th & Como Ave., S.E.
MINNEAPOLIS, MINN.

Move Tools and Supplies
FAST, EASY, SAFELY!

NOLAN
Tool and Supply
CAR



with the NOLAN Tool and Supply Car



2000 pounds capacity. Takes tools and supplies to the job from truck or bus. All tubular high-carbon steel construction, designed to safely carry heavy loads of ties, rails, supplies and tools.
The car breaks conveniently in the center into two sections for easy handling and transportation. Easily and quickly unhooked or hooked together. Each section can be used for a truck seat.
The deck is heavy mesh-expanded steel. Removable handle can be used at either end. Ball bearing cast steel wheels.
Platform Size 48"x45"
Height Above Rail 8"
Weight 140 lbs. complete

NOLAN TRACK DOLLY

The fast, safe, easy way to transport heavy rails, ties, supplies, tools, rerailers, etc. Tubular high-carbon steel construction. The deck is heavy mesh-expanded steel. Removable handle.

STANDARD DOLLY

Length	Width	Rail	Weight
50½ in.	15½ in.	6⅝ in.	88 lbs.

INSPECTOR'S DOLLY

36 in.	14 in.	6 in.	60 lbs.

FREE CATALOG—Write THE NOLAN COMPANY, 166 Pennsylvania St., Bowerston, Ohio

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GET TO THE ROOT
OF YOUR WEED
AND GRASS PROBLEM
WITH . . .

CHLOREA® GRANULAR

Kills All Weeds and Grasses . . . Stops New Growth
Ready to Use . . . Nothing to Add . . . Easy to Apply

CHLOREA GRANULAR is a pelletized combination of 3 proven chemicals. This combination kills deep-rooted weeds and grasses; also shallow-rooted grasses, weeds and annual seedling growth.

CHLOREA GRANULAR is particularly intended for use in locations where large scale spray application is impractical . . . such as freight yards, terminals, storage yards; under bridges and trestles; around warehouses and stations.

CHLOREA GRANULAR pellets are easy to apply with any mechanical spreader used for granular materials, or may be broadcast by hand.

CHLOREA GRANULAR is effective at low application rates . . . about 400 pounds per acre; less where only annual vegetation is involved.

CHLOREA GRANULAR has demonstrated its powerful kill-all effectiveness in extensive use on many leading railroads.

Send for FREE Sample Packet
and Illustrated Folder

CHIPMAN CHEMICAL COMPANY

DEPT. A1, BOUND BROOK, NEW JERSEY

World Leader in Chemical Weed Control Since 1912

READY CARBON
ROUND TRIP
LETTER SET

ROUND TRIP LETTER

TO Chief Engineer

DATE January 4, 1960 SUBJECT 1960 Vegetation Control Program

In recent years our chemical control program has been stretched as related to the quantities available, to the point where we are obtaining a "TOPKILL" only.

My recommendation is to start a real "CONTROL VEGETATION" program.

With this in mind I would recommend that we apportion the sum of money made available for this work, so that the following procedure may be followed:

1. On areas where vegetation is most dense, apply sufficient chemical to assure a heavy treatment and a root kill.
2. Take the remaining amount of money and use it for liquid "CHEMICAL MOWING" treatment.

I understand that this procedure has been followed with marked success on several railroads. Our method of recent years has failed to give satisfactory control, and in some areas we have even slipped badly on control. If the procedure suggested was followed hereafter it would offer the prospect of giving us far better control in a few years time through a "cycle maintenance program".

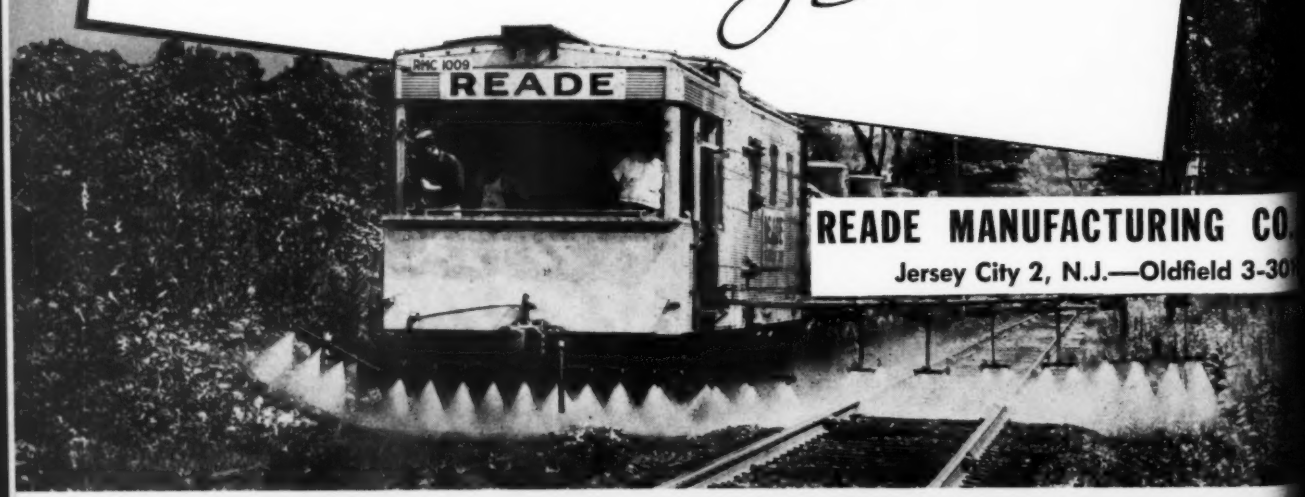
SIGNED John Doe DEPT. E. McWay.

REPLY:

John: This is the type of program you and I discussed with the Reade representative when he was here last. I heartily agree with long range planning such as has been suggested. Contact Reade and arrange for a meeting at the earliest possible opportunity.

I believe we can work out the details for a program of this type that will fit our budget.

JB



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Jersey City 2, N.J.—Oldfield 3-30